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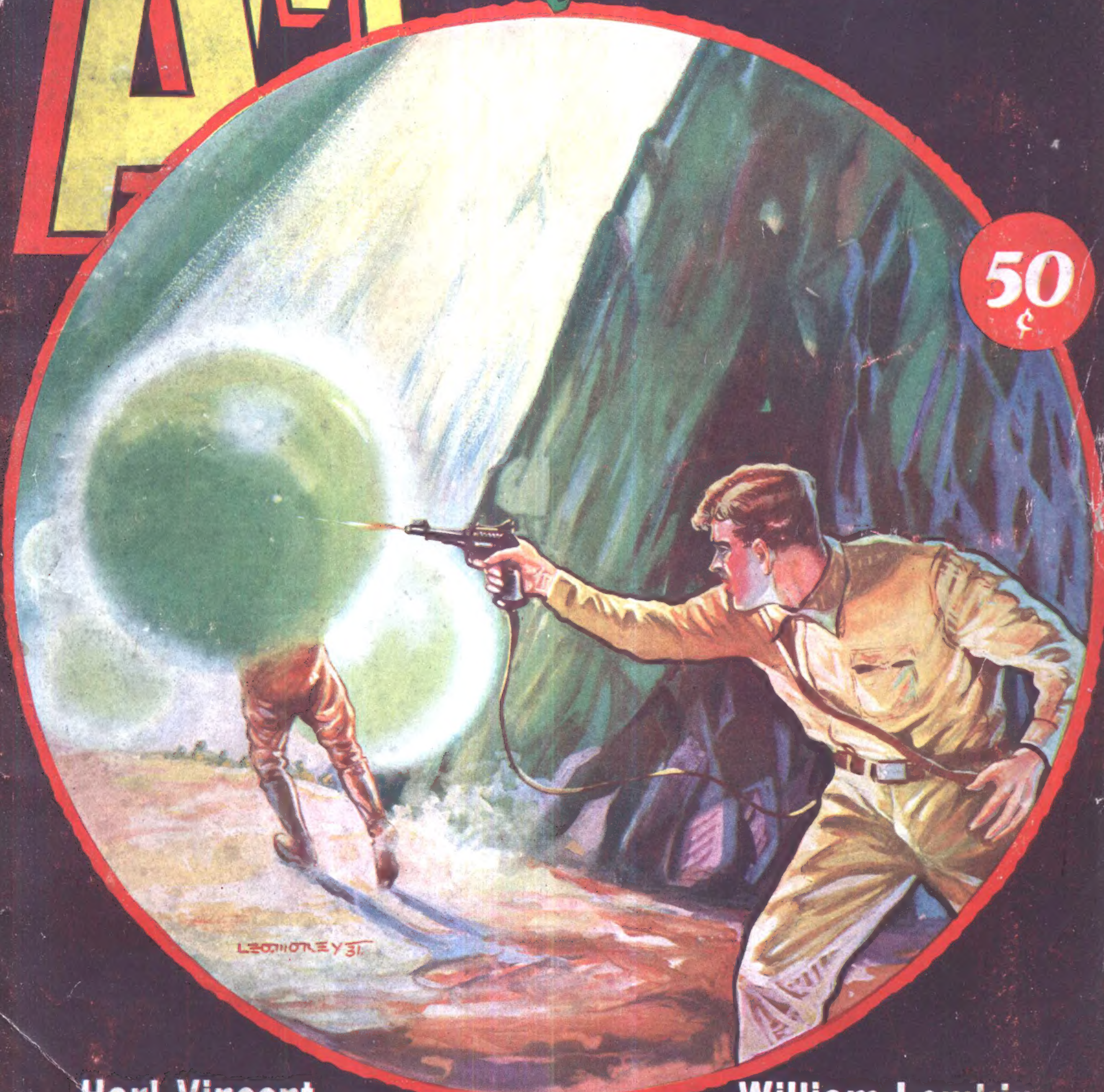

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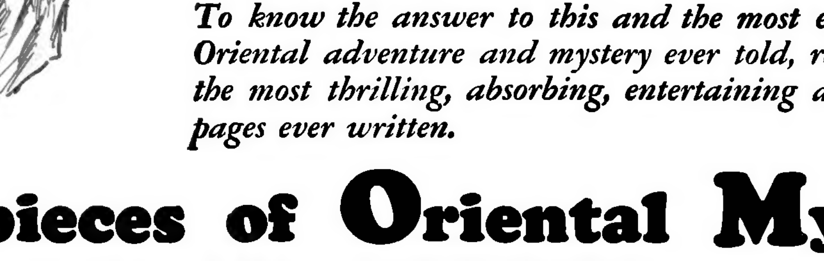

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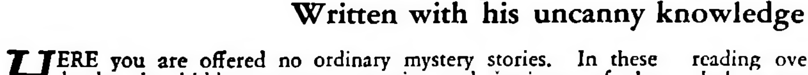
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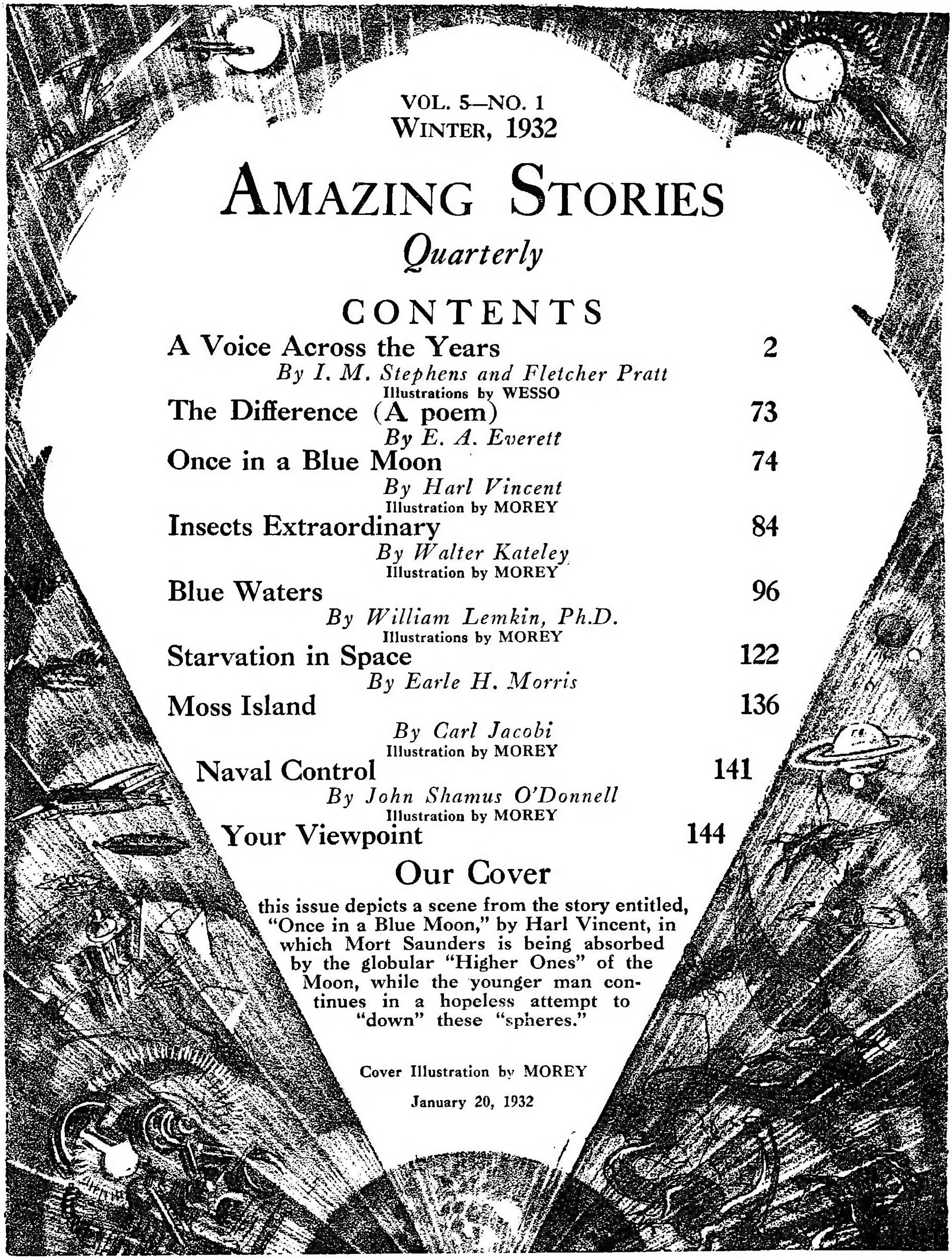

VOL. 5—NO. 1
WINTER, 1932

AMAZING STORIES

Quarterly

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Our Cover

this issue depicts a scene from the story entitled, "Once in a Blue Moon," by Harl Vincent, in which Mort Saunders is being absorbed by the globular "Higher Ones" of the Moon, while the younger man continues in a hopeless attempt to "down" these "spheres."

Cover Illustration by MOREY

January 20, 1932

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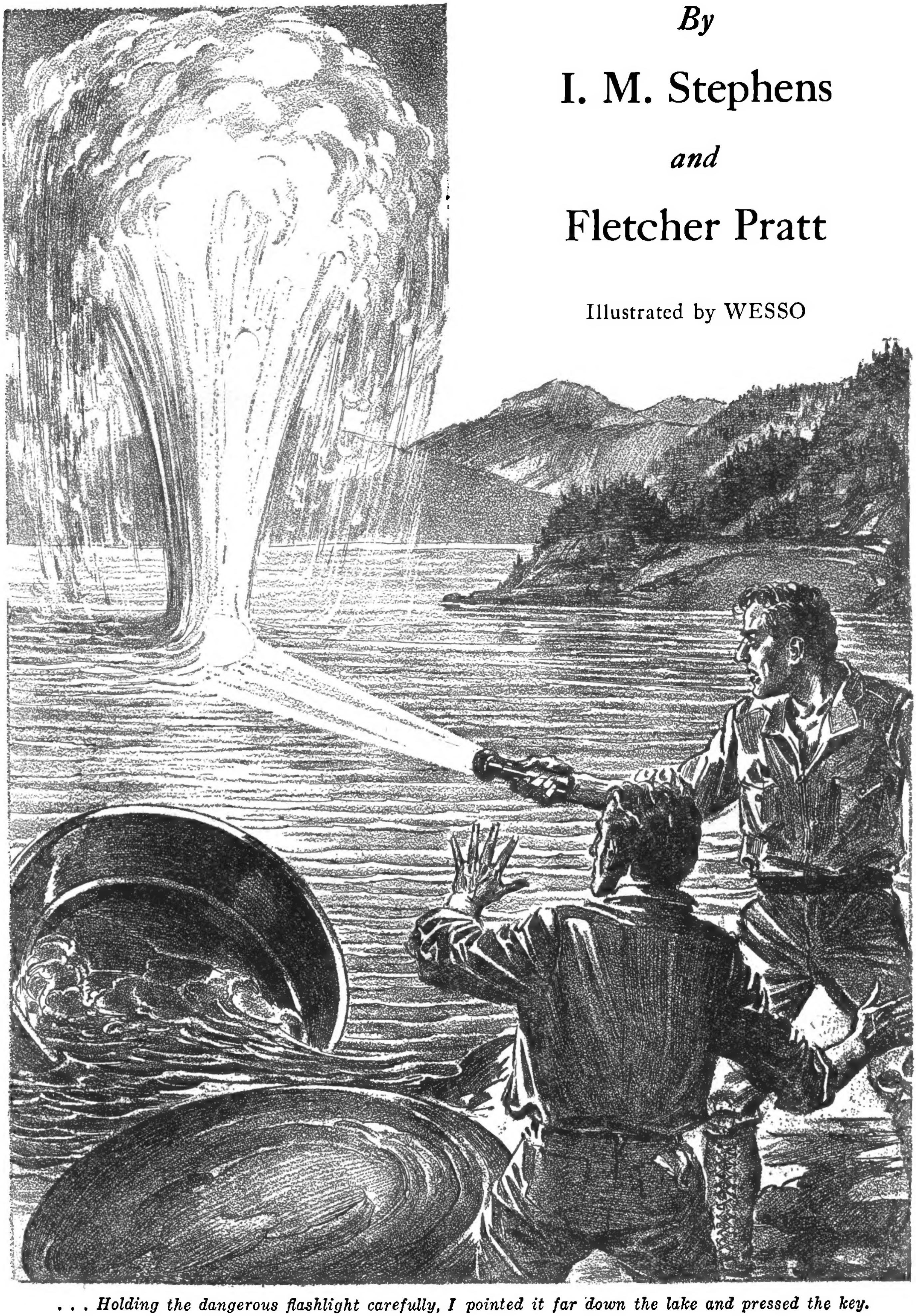
By

I. M. Stephens

and

Fletcher Pratt

Illustrated by WESSO



. . . *Holding the dangerous flashlight carefully, I pointed it far down the lake and pressed the key.*

A Significant Novel of Interstellar Adventure

A Voice Across the Years

WHEN expeditions of scientists return from the wilds of unexplored countries—those who do return—they give the world detailed, and often exciting, accounts of their discoveries and experiences. But isn't it quite logical, in the light of our present knowledge, that a few of these might withhold some very important experience or discovery, that is so far beyond our wildest conjectures, simply as a means for self-preservation? Our two authors—one a newspaper man and the other a scientist—tell what they think in this outstanding novel.

Prologue

IT is now eight months since the return of the Hudson-Bird Expedition to Central Asia. The scientific results have exceeded all expectations. Those who have followed technical periodicals are aware that it returned with eleven new species of sauropod dinosaurs (of which five belonged to new genera), an interesting and aberrant form of *Brontops,* several fine specimens of *Oxydactylus,* and its relatives, numerous amblypod remains, and a few very primitive bird forms besides the interesting Eocene ape allied to *Dryopithecus* which has figured somewhat sensationally in various newspaper accounts as "another missing link."

But there is one result of the expedition's labors which is now being given to the world for the first time. Save for an extraordinary series of accidents, it would hardly have seen the light of day at all. Briefly, its history is this:

While the expedition was in Mongolia, Professor Hudson was one night visited by the headman of a small village near Kiakhta. The headman's only son was, it appeared, going blind, and he wished the professor (who, unknown to himself had acquired the reputation of being in league with the powers of air) to see what he could do for him. Professor Hudson obligingly went; found the boy suffering from nothing more serious than a case of ophthalmia; treated him and left some eye-wash with the chieftain to be used with certain incantations, which he invented on the spur of the moment to make certain that the eye-wash would find its proper use and not be drunk.

There was some difficulty about the camel-train at this point and the expedition was forced to remain in the neighborhood for three weeks. The headman, whose son had now completely recovered, became almost embarrassing in his gratitude, and capped the climax by offering to present Professor Hudson with a stone that had fallen from the skies. Thinking it might be of some interest as a meteorite, the professor accepted the offer, and the next day the headman arrived with the stone, which was about thirty inches in diameter, roughly prolate in shape and deeply pitted. It was packed with other specimens and forgotten for a time.

During the return journey, while the expedition was descending a pass in the Great Khingan, one of the pack animals, becoming frightened at a bird which swerved near, lost its footing and tumbled from a ledge into a rocky valley a hundred feet below. The animal was killed, and the case it carried burst. Among the contents was the meteorite which the headman had presented to Professor Hudson. It struck on a projecting pinnacle of rock and a piece was broken off: Upon retrieving it, members of the expedition noted that the surface of the break was clearly metallic and not at all like that of the average meteorite, and further examination revealed it to be faintly radioactive.

Subsequent chemical examination showed that the meteorite was in fact composed of a perfect alloy of tantalum, platinum and other metals, with a small quantity of uranium X present (which accounted for the radioactivity). The combination was so exceedingly curious that Professor Hudson had it cut in two for further examination upon the arrival of the expedition in New York.

It proved to be hollow, and within the central core were several extremely thin sheets of nickel closely covered with minute writing. To the astonishment of those present, the writing, on being placed under a magnifying glass, proved to be in English. It had been applied to the metal by some means, chemical or mechanical, whose exact nature is not known.

The present narrative is a recension of that found on the nickel sheets without corrections or alterations. It tells its own story. The internal evidence of its authenticity is good; it was apparently begun at some leisure (even with an eye to publication) and finished in haste and under the shadow of some overwhelming event. The account holds together as a whole; it has no scientific inaccuracies that can be checked, except insofar as it disagrees with the Einstein theory of velocity in empty space, and this disagreement is explained in the narrative itself.

As to external evidence. It is true that a broker named Alvin Schierstedt disappeared from a cottage on Sunderland Lake under circumstances of considerable mystery about twelve years ago. Mr. Merrick Wells, the lawyer mentioned in the narrative, could have supplied the final check; but unfortunately he was killed in an aviation accident in the spring of 1928, and any papers he may have kept, tending to prove the truth of the narrative, have been hopelessly lost. The editors have visited the site of Schierstedt's cottage and the Shoraru in person; but twelve years is a long time in the forest, and the natural growth of vegetation has effectually hidden any traces that might remain.

The actual transcribing of the manuscript on the nickel plates was a matter of no small difficulty, particularly as the writing was in an exceptionally illegible hand. After some experiment, the happy idea of putting the sheets in an old-fashioned magic lantern (so arranged as to give a positive instead of a reversed image) was hit upon. One of us worked the lantern and the other sat before the screen transcribing the manuscript direct on the typewriter. The writing, which was not very good in the first part, became worse as the manuscript continued, and finally so bad that a considerable portion had to be omitted entirely. But the work is now done, and we make bold to present it to the world for what it is worth. It seems to be not without interest, and even value. The division into chapters was at the beginning, the work of the author —Mr. Schierstedt. Toward the end, the division is ours, as a large portion of the latter part was lumped in a single connected whole.

I. M. Stephens and Fletcher Pratt.

We have read the statement of Messrs. Stephens and Pratt as to the manuscript found written on nickel in the center of the Kiakhta meteorite and find it correct in all respects. We believe their transcription to be accurate.

(Signed) Theo. G. Hudson, D.Sc., LL.D., F.R.G.S.,
Curator of Vertebrate Paleontology, Queens Museum,
Arthur M. Appleyard, D.Sc.,
Associate Curator of Mammals, Queens Museum.
F. Thomas Snook, B.S.,
Associate Curator of Geology, Queens Museum.
N. F. Nikansrud, Ph.D.,
Curator, Division of Archeology, Connecticut State Museum of the Science of Man.
Paul Theobald, A.M.,
Photographer, the Hudson-Bird Central Asiatic Expedition.

ON an evening so ideal as that when the adventure began we hurried through the dishwashing with uncleanly speed and adjourned to the "front yard" for a pipe before the fire. The front yard was a yard by courtesy only; the name implies clearings and settled dwelling places, whereas our front yard reached out for miles into hills as thickly covered with virgin forest as when Montcalm passed through them with his soft-footed Algonquins.

We had chanced on the spot some years before, after taking a wrong turn during a walking trip in the Adirondacks. It won our hearts at once, and when we got back to the city, Merrick turned all his legal wiles to the task of finding the owner. It proved by no means easy; Sunderland Lake is not on the ordinary map at all, and the railroad passes it disdainfully, far to the east. Winter had set in before we discovered that title rested with one Pierre Chevigny of Three Rivers, Quebec.

I was at once appointed ambassador extraordinary to the little French-Indian town, and after some search located Pierre Chevigny in a slab cabin with ears of corn hanging from the rafters. He turned out to be an old man with no yearning for wealth, and it was not until I offered him some of the Honourable the Hudson Bay Company's tobacco and put in writing our assurance that we had no intention of building a hotel or bringing in tourists, that I even got a hearing. "My heart, she is broke if you do that," said the old Frenchman, with a theatrical gesture. "I live there before I marry, an' I lof those wood'."

I had to spend a week in Three Rivers before I escaped with the deed and began to look up a carpenter. "Joyous Gard"* was the ultimate result—two rooms, log-built, with just space for beds, fireplace and a few books. Every summer after that found us there; frequently with Pierre Chevigny as a guest, for the old habitant migrated like a bird between his woods and his home in Three Rivers.

He had left not long before that night (late August had come and he needs must go home to gather his slender crops), slipping silently away in the canoe which would presently deliver him *via* by-ways and portages to Lake Champlain and the recesses of the north.

We were settled before the fire, drinking in the glory of the night; one of the most gorgeous I have seen anywhere, still and brilliant, with the promise of fall. There seemed no sound left in the world. The chirp of an early cricket like an orchestra and the snap of a spruce log in the fire was like an explosion of thunder.

As we leaned back, we could see the vast pageant of the Milky Way wheeling across the central heavens. Below it was mirrored in the lake, still as marble, save where some touch of the tiny airs that always lurk in the funnels of the mountains touched it. Through the trees, dark and spectral, or picked out with crude orange by the light of the fire, we could just catch this multiple reflection of the stars. Everything was scintillant; one felt very small, as though at the bottom of a deep well of space, and the hurrying track of an occasional meteor served only to emphasize the universal silence.

It was Merrick who noticed the big meteor first. Not caring to break the charm of our quiet content, he swung his arm up to call my attention to it, and we watched it together, glowing like a holiday fire-balloon, far in the south. I recall being surprised that it did not, like the rest, blaze a second or two and then die to nothingness. It kept growing larger almost as though it were approaching us.

For perhaps two or three minutes we watched it, as it grew and grew, to the size of a street light, to the size of a great electric arc-light, to the size of a full moon, a yellow globe of dazzling radiance, rushing straight toward us. I realized suddenly that it was going to strike and that it was aimed right between my eyes. For a moment I experienced that sensation of impotence in the face of onrushing disaster that one feels in dreams. I think I shouted; Merrick was on his feet, striking the end of a burning log and scattering the fire in a shower of sparks, and then the monster was upon us.

There was a blinding rush of light, a whistling roar of air, and the meteor struck the verge of the lake, not two hundred yards away, with a terrifying crash and an upflung pillar of steam and driftwood. We heard the sough of the waters as they closed round the sizzling shape, saw the boughs of the trees tossed by the wind of its passage, and with common impulse raced down toward the spot.

After all, it was not so large. Formless and black, its top stood out from the steaming water of the miniature bay created by its arrival, perhaps two feet across. A tiny spot still glowed redly on the pitted irregular surface. For the rest it was simply a big, black stone. We gazed at it more or less vacuously for a moment, then turned toward each other, and laughed at the relief of the sudden tension. "Great God, what an uncomfortable neighbor," said Merrick. "I hope they don't keep on shooting things like that at us."

---

*It is now called Bellevue by its present owner, who contemplates considerable enlargements and alterations.

WE went back to reconstruct our scattered fire, but the tranquillity of the evening had been spoiled. The celestial intruder had broken in on our train of thought and it refused to be restored, so after a few desultory attempts at conversation, we dragged off to bed. Had we known that it was to burst in on our lives in the same fashion, I doubt whether we would have remained even at Joyous Gard to await the result. One's capacity for adventure decreases as one grows older.

We were up at sunrise the next morning. Too much of the best of the day comes at earliest dawn to lie abed in the woods. After the matutinal dip in the lake, I set about getting breakfast while Merrick looked up wood and water for the day's utilities. I was just coaxing a refractory fire into burning, when I heard his shout.

"Oh, Al!"

"Well, what is it?" I called back without turning around. I was annoyed by the stubbornness of the fire.

"Come here a minute."

"Can't it wait?"

"No. Come here, quick." I abandoned fire and breakfast to run down the path to the water, wondering what he had found. He was standing at the lake's edge where the meteorite lay nearly buried in mud and water.

"Look," he said, pointing. I followed the line of his finger to see a slow little curl of mud clouding the clear water, as when one stirs the bottom with a stick.

"Well, what of it?" I asked with some asperity, and was about to return to my interrupted cooking when my ear caught a gentle hissing noise. My resentment fled.

"What is it?" I asked, "Turtle?"

"Don't think so," was Merrick's reply. "Turtle wouldn't make that much fuss. Something going on inside our visitor."

The mud was clearing now and the hissing had ceased. "Probably chemical action of some sort," said I. "Come on, let's get breakfast and look at it afterwards." Merrick gazed for a moment or two and then followed my impatient steps toward the shack.

Breakfast diverted us both from the subject and when it was over, Merrick set off in the canoe for the spot where he thought a crane had built a nest and would now be teaching the young to fly, while I retired to a corner with my microscope and a field book of fungi to identify a curious pink mushroom I had found.

The sun was high and I was beginning to wonder whether it were not time for lunch when I heard the grate of the canoe on the beach and Merrick's hail. A moment later he appeared, swinging a couple of pond lilies in one hand.

"Any luck?" I asked.

"Some. Think I saw one of the young cranes. Either that or an awfully small old one. Say, there's quite a stew going on around that meteorite of ours. Wonder what it's got inside it to make the water act so."

"That's odd," I remarked. "They're not usually composed of things that would be very soluble, I believe.* Most of those I've heard of were pretty largely iron. What's it like?"

"Oh, quite a sizzling and bubbling. Lot of mud stirred up. Maybe the inside is still hot and the water's getting at it."

"Possibly," I agreed, not deeply interested. "We ought to get some sticks and lever it out of there. I'll chip a piece off and take it to the museum when we get back and see what they think of it."

Lunch put an end to the subject, but after we had eaten I dug the old axe-head we used for a wedge out of the wood pile and went down to see if I could chip a fragment off the gift showered so unexpectedly on us by the skies.

When struck, it gave back a dull ringing sound as though I were striking an anvil, and my utmost efforts with the axe-head failed to bring loose the smallest chip. Finally, somewhat exasperated at the rebelliousness of the material, I propped the axe-head between a couple of stones where it would bear on a projecting boss of the meteorite, and getting the good axe from the shack, struck it a swinging blow. There was a heavy clang of metal meeting metal, a few sparks and the axe-head, accompanied by fragments of stone, sailed through the air at a tangent to bury itself deeply in the mud.

When I fished it out again, I found the edge quite turned over but on the flinty surface of the meteorite only the slightest scar was to be seen. Clearly it had been tempered to an unearthly sternness by the fire of whatever distant star it had left for our world. It was odd that water could cause such a commotion in so solid a substance . . . I dipped an inquisitive finger in the lake and drew a wet line across the top of the meteorite where it projected, and waited for something to happen. No result; the water merely lay in shining drops without having the least effect. There remained the chance of breaking a piece loose by the old Indian method of building a fire on it and then hastily pouring water on the hot rock, but I regarded it as hardly worth the trouble, and went about my business of the afternoon without more than a casual thought of this singular shooting star.

Dusk had come again, and we were just finishing off an uncommonly good dinner of lake trout when the mystery solved itself. The woods are filled with small noises at this hour, and neither of us gave particular attention to the slap of some flat surface against the water, but when it was followed by the gurgling rush of waves, we both looked in the direction of the meteorite.

"What was that?" asked Merrick.

"More chemical action down there, I fancy," I replied. "Let's go see." I rose from my chair, and then catching sight of the expression of stark amazement on Merrick's face, turned swiftly to meet the most astonishing sight ever seen on an Adirondack lake, or for that matter, anywhere else.

A man stood, half-leaning against a tree, perhaps fifty yards from the porch where we sat. His clothes, of some close-fitting dark material, were dripping wet and spotted with mud. On his head was a helmet, not unlike the kind aviators wear, but with narrow projections over the ears that gave him an odd, faun-like appearance. In one hand he gripped an electric flashlight, and his head was bent as though he had difficulty in holding it upright.

For a moment we stood, transfixed with astonishment, then both together sprang toward the stranger. As we did so, he lifted his head with an effort, looked at us a moment, cried "Kingomi!" in a strong, resonant voice, and tumbled in a dead faint at the foot of the tree, the flashlight dropping from his hand.

---

*He was quite right. Most meteorites are crystalline rock of extremely permanent character. A few are metallic iron, alloyed with nickel and cobalt. But in either case, there is little or no chemical action with water.

CHAPTER II

WE got him on the porch, and while Merrick went for some of the illegally potent beverage with which old Pierre kept us supplied, I made shift to wash from the face of the stranger some of the caked mud, sweat, and blood which encrusted it. My labors revealed a not unpleasing masculine countenance, with the long lines from nostril to lip deep-graven by fatigue. When Merrick had forced a teaspoonful of the cognac into his mouth, the stranger opened a pair of sharp eyes, looked at us a moment, lifted his hands toward his head as though to remove the encumbering helmet and then, his forehead wrinkling with pain, closed his eyes again.

He was obviously badly done up. Just as obviously he wanted the helmet off, and while Merrick lifted his head, I tried to pull it loose. Despite my utmost efforts it would not budge.

"Wait a minute," said Merrick. "Don't pull his head off. There's a button." He pointed to a spot just over one ear where two little flattened studs were recessed into the glossy covering. At a venture I turned the upper one. Immediately, from inside the helmet, a voice began to speak, as though we had turned on a radio set in mid-sentence. "—arroum livolongale," or some such gibberish it said, as nearly as I could make out, but Merrick had returned the stud to its original position in feverish haste and it fell silent again.

"Golly," he remarked, "it's a radio set. Here, let's see what the other stud will do."

But as I bent over I saw that the eyes of the patient were opening again and motioned Merrick back. This time he succeeded in raising his hands to the peculiar helmet; there was a snapping of tiny levers, and he dropped his arms again with a little gasp.

I reached for the helmet, understanding that whatever lock had held it in position had been released. It came away in my hand, revealing to our complete astonishment, a head as bald as a newly-laid egg, contrasting oddly with the youthfulness of the man's face. He smiled wanly as I got the apparatus off, and then lay relaxed with closed eyes, apparently not unconscious, but as though ill or injured.

"Seems to be hurt," said Merrick. "I don't know much about anatomy, but with the manual and what we do know between us, I imagine we can find out if anything's broken. D'you suppose you can make him understand what we're after?"

"Apparently he doesn't understand English," I answered, "and I have no idea what that language was we heard his radio spouting. *Parlez-vous Français?"*—this last to the visitor.

He merely opened his eyes on being addressed, but there was no gleam of comprehension, and Merrick, who was more of a linguist than I, tried him in German, Spanish and Portuguese, with equally barren results.

"No, go," said Merrick. "Let's try direct action," and he began feeling of the stranger's arms and legs. Apparently there were no breaks. "But I'm not much of a doctor," protested my friend. "Wonder if we could get him in to Fort Ann?"

There were five miles of lake and five more of particularly villainous country road between Joyous Gard and Fort Ann. How we were to get a sick man that far with no means of transportation besides a canoe, which would be useless once we left the lake, I did not see, and I said so. In return I suggested that we could do more for him where we were.

"He's probably suffering more from fatigue and shock than anything else," I said; "probably got some lake water inside him, too. Suppose we give him another dose of brandy and later on we'll try to feed him."

"O. K.," said Merrick, "and if he's not better by morning, one of us can run in to Fort Ann and dig up a doctor."

Our patient was better in the morning, however, and the trip to Fort Ann was declared unnecessary by acclamation. The stranger sat up in the bunk Pierre had vacated and accepted a cup of coffee with languid gratitude, drinking the liquid with relish. Toast, on the other hand, he first nibbled and then refused, and when we offered him one of the small fish we were breakfasting on, he dug away at it with his coffee spoon and then crammed a good-sized portion, bones and all, into his mouth. I imagine the bones surprised and hurt him; he made an inarticulate sound of displeasure and spat them out, looking at us with some indignation, which changed to obvious astonishment as we separated the bones from our portions before eating.

After breakfast, the stranger (whom Merrick forthwith christened "Friday") went to sleep again, and Merrick and I strolled to the beach to have another look at what must have been his vehicle. There was not much of it visible; his exit had evidently been made under water. Below the clear surface, a double ring, not more than a couple of yards in diameter, indicated where the top had come off. It was a wonder he had not been drowned in escaping, and at the time, more of a wonder that he had not been burned to death. "Good God," ejaculated Merrick, after an inspection of the meteorite had confirmed our opinion that Friday had indeed emerged from it, "imagine the temperature that thing was at! He must have had a wonderful system of insulation. And even then——"

At one side of the main mass of the thing, where the hole made by its arrival rose sharply to the beach, lay the lid, half in and half out of the water—a huge thing that it took both of us to pull up on the sand. We marveled that Friday, faint and weary as he was, had been able to move it at all.

The outer coating was as we had seen—some extremely hard material, pitted and scarred by the heat of its contact with the atmosphere. The inner surface was a light grey in color, soft to the touch, but firm and rubbery. When Merrick jabbed it with his knife, the material closed over the wound without leaving a visible scar. At the edges a white layer of some third compositon, about an inch in thickness, lay between the lining and the outer hard shell. It was as unfamiliar as the other two and Merrick's knife would not even scratch it. Clearly, for one who was neither a chemist nor a metallurgist, there was little information to be gathered from the composition of this singular flaming airplane, and leaving it where it lay, we returned to the shack.*

On the way up the path my foot struck the flashlight the stranger had dropped the night before. I bent to pick it up, noted that it was of the ordinary cylindrical type but furnished with a frosted glass cover, and pointing it off to one side, idly snapped it on. Immediately there was a low buzz and a beam like a lightning flash leaped from the ground glass into the trees. We heard a vicious whup! saw a gleam of flame, and when I snapped the flashlight off again, we could easily perceive the circular hole—all burned round the edges, where the beam had struck a foot-thick maple.

"Heavens!" I said, gooseflesh creeping on my back at the narrowness of the escape. "Lucky I wasn't looking into that thing when I turned it on. What is it?"

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*We were unable to find any trace of the car in which the visitor arrived at Joyous Gard. But this is not remarkable; the new owner of the place has built a dock and dredged out the bay on which the cottage stands for several feet in all directions to accommodate the high-speed motorboat he has installed there. The man who did the dredging does not recall anything particularly remarkable about the stones he removed except that some of them were very large. They have been sunk in the middle of the lake and searching for them would be a hopeless task.

"Don't know," said Merrick. "Never saw anything like it. Golly, this beats a gun if it's real. Let's try it on the lake and see how much range it has."

We stepped back to the shore, and holding the dangerous flashlight carefully, I pointed it far down the lake and pressed the key. The buzz and flash were repeated, and perhaps a mile away a silver plume of steam sprang from the water.

"A heat ray," pronounced Merrick. "Just like H. G. Wells'. This johnny knows his stuff, whoever he is. He's got a nice adjunct to the gentle trade of murder there. Better put it away. He might get peeved and try to use it on us."

FOR the next three or four days Friday did not seem inclined to try to do anything. He rested in the bunk, watched us at our daily tasks and enjoyments with a friendly but detached interest, and slept. Though he accepted food with a certain graceful courtesy, he seemed curiously uneducated as to table manners. From the first he refused to use a fork, testing its sharp points with an inquisitive finger and laying it aside. The iron knives we used in lieu of silver at the camp, he examined with interest, but did not attempt to use. Spoons alone he seemed perfectly familiar with, and pressed into service for all his eating. Indeed, he acted surprised when he failed to cut the steak we gave him one evening with the edge of his spoon, and after several ineffective attempts at dividing the meat by this means, finally picked up the whole piece and worried a mouthful loose with his teeth.

We were frankly curious about him. His extraordinary knowledge of radio (as evinced by the helmet receiving set), his wholly remarkable knowledge of physics (the heat-ray flash), the gentleness of his manners, proclaimed him a highly civilized and intelligent person. Over against this was his ignorance of the most elementary articles, such as a knife and fork, and his total non-comprehension of any of the various languages we knew between us. Asia or Africa seemed the only possible conclusions, but the cast of his features was neither Asiatic nor African—the long, thin face with the high-bridged nose, the bright, straight grey eyes, were distinctly Caucasian. Yet he made no attempt to speak in any language, and as the days passed we noted a further peculiarity. Although he did nothing but lie in the bunk, he was no more in need of a shave than when he had arrived, and there was not a trace of hair on his bald but singularly youthful head.

The days since his arrival had grown into nearly a week in this state of burning curiosity on the one side and polite suspended animation on the other, when one evening, when rain pattered on the roof and the wind rattled the window frames, Merrick and I sat before the fire in the larger of our two rooms, reading. Friday had risen from his bunk and was ensconced in one of our chairs at one side of the fire, watching us with silent interest.

As it happened, Merrick was reading one of those one-volume editions of Shakespeare, and he was the first to speak.

"Do you know," he remarked, "I have always thought 'King John' the most underrated of Shakespeare's plays. There is some of the most gorgeous rhetoric he ever wrote in it—better than anything that has been done since, even Yeats' 'Wanderings of Oisinn.' Listen to this—" and he began to read the last lines of the play, the speech of the Bastard which ends with

"Come the three corners of the world in arms
And we shall shock them; nought shall make us rue
If England to herself do rest but true."

Merrick reads poetry very well, and I heard him as I always do, with a little thrill of pleasure. But it was upon our guest that the greatest effect was produced. He rose from his chair, staring at Merrick, and then pointing to the book, began to move his hands vigorously.

"For the love of Mike," said Merrick, "what do you suppose he wants now?"

"Wants you to read some more, of course," said I. "Try it." He ruffled the pages a minute and then began again. The stranger smiled and bowed, with a scraped-back foot, in approval. After a moment, when Merrick came to a pause, Friday rose, went to his bunk, and returned with the curious radio helmet he had worn when we first saw him. After fiddling with some keys inside it for a moment he put it on, lay down on the floor beside the fire, and closed his eyes, while we gazed.

"What in the world—?" I began, but Friday had opened his eyes again and was gesticulating feverishly, pointing to the book and then to Merrick's lips.

"I've got it," said Merrick after a moment. "He wants me to read to him while he's asleep. But what for?"

I cogitated. "It might be some system of learning while you're asleep. Didn't they try something like that with sailors at Pensacola? Seems to me I read somewhere they learned radio with head-sets on while they were in bed.*

"And you think he wants to learn English that way? All right, let's try it. He seems insistent, and I can stand it if he can."

Turning the pages and clearing his throat, Merrick began:

"Antonio; in sooth I know not why I am so sad—" the opening lines of "The Merchant of Venice." Friday settled himself down with a contented smile. On and on Merrick read, his voice rising and falling in the majestic cadences of the poet, while the rain beat steadily over our heads and the fire burned low. Finally he reached the last lines and rose, stretching his arms.

"My voice is husky," he said. "Let's go to bed."

CHAPTER III

IN the morning came fresh airs that shook the rain from the sky and presently cleared it for the languid warmth of an August day. We were early afoot, and as I busied myself about the kitchen, Friday emerged from the bunk room to which he had evidently retired after we went to bed. His helmet was off, and I thought I saw a new light in his face as he advanced across the room.

When he was a few feet away, he suddenly bent his knees in a gesture of greeting, and without the slightest hesitation, began to speak:

"Though even yet I know not your strange tongue,
(I pray you pardon my indigencies);
I wish you well and would hold nomination
Upon him matters. Speak your noble friend."

I fear I did him the discourtesy of staring, openmouthed. Both grammar and accent left something to be desired—he rolled his r's furiously and his s's were slurred into the indescribable French j—but that a man who had been unable to speak or understand English one day before should suddenly burst into Shakespearean blank verse—well, it seemed impossible. As I stared, he was off again:

"Have I not made you read my tongue aright?

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*He is again perfectly right. The experiment of teaching navy men radio while asleep was tried at Pensacola, and with complete success. The sailors were unable to remember what they had heard while asleep, but on waking were able to send and receive radio messages with remarkable skill, though they had had almost no previous training.

Oh, hell! What costly post——"

But I had recovered the use of my voice. "Oh, Merrick, come here quickly!" I called.

As my friend entered, Friday again bent his knees in a little curtsy, and flinging out his arms to include both of us in a gesture, began once more:

"Kingomi, friends! Ashembe is my name.
Before the stormy shipwreck of my fortunes
Upon your most inhospitable shore

(I was a little taken aback by this—but remembered that it was his maiden effort in the English language.)

I left a ruddy moon deeper in space
Than all your candles. I would gabo.
Tell me, do you possess it in this deed?"

It was all so grotesquely intelligible-unintelligible that both of us laughed. "What is he trying to say?" asked Merrick. "And what is gabo?"

"Haven't the slightest idea," I answered, thinking of the last question first. "But I think he's trying to tell us that he came from another planet?"

"Another planet!" cried Merrick. "Why . . . still, that would explain . . . there's that heat ray——"

I turned to the man who had described himself as Ashembe. "Am I not right?" I asked.

He stared for a moment, his brows wrinkling with concentration. Then:

"Ah, who will now unriddle me this tongue?
Right? Planet? What are these? I only know
I left a deed——"

It was as bad as the first effort, but at all events communication of a kind had been established. Ashembe (or Koumar Ashembe Bodrog Fotas, as he later gave his full name) continued to speak in blank verse; you could see him winding up for the effort as it were, before each speech, his lips moving silently, his brows wearing an expression of intense concentration. He used his newly acquired English with a terrible accent and with so many misplaced words that we only understood a third of what he was saying, but with patience and interest to aid us we managed to make out the general drift.

As I recall that first day's conversation, it turned upon quite unimportant matters. The Shakespearean vocabulary is no doubt extensive, but so much of it is given to the expression of the abstract passions of love, grief and hate that there is little left with which to carry on an ordinary conversation. And in this technical age one would find amazing gaps if he were to try to discuss things, using only the words found in "The Merchant of Venice."

Even worse than his paucity of English words was the wealth of metaphor with which Ashembe found it necessary to clothe the most simple statements, and the archaic character of Elizabethan English as a medium for expressing just what he wanted. "Leaden casket" was the best phrase he could find to describe his traveling car (or whatever it was) and he kept referring to the place from which he had come as a "moon" or a "deed," doubtless remembering the "so shines a good deed in a naughty world" line in the play.

Unraveling these difficulties consumed the greater part of the day. What we finally made out of it all was that he stuck unreservedly to his at first incredible statement that he had come from another planet; and that he wished to exchange valuable formulae for "gabo." What "gabo" was, neither of us had any idea, except that it was apparently some metal, judging from Ashembe's description of it as "glittering more than gold."

He also managed to make it clear to us that his radio helmet in some mysterious way enabled him to learn things while asleep, helping him appraise ideas as well as words, and thus enabling him to learn a new language in remarkably quick time. He was, it appeared, particularly anxious to have us read more to him on scientific and technical subjects.

Fortunately, there was, among the few books we maintained at Joyous Gard, an old set of the International Encyclopedia that Merrick had once purchased in a moment of aberration, and had brought up there to help us identify various plants and insects. When we managed to communicate to Ashembe that we had a compendium of worldly knowledge, he was off on the instant for his helmet, explaining in a good many splurges of oratorical blank verse that he wanted to begin absorbing it at once.

That evening Merrick took up the task of reading to him, while I set about the obtruding necessity of food, and from then far into the night we kept at it ceaselessly, skipping all the articles that were historical, literary or merely of interest to the curious, and confining ourselves to technical and scientific matters—which, it must be admitted, we understood very badly ourselves. In the morning Ashembe put us at it again, this time discarding his helmet and trying to learn to read by the ordinary method. Progress in this direction was slow, however—as he explained, half in verse and half in the pedestrian prose of the encyclopedia:

"My father's people have for long and long unable been to extract attainments (knowledge?) by images of the glittering eye. So thoroughly have we become imbued with the use of the Tensal (his helmet, apparently) that the method of the printed page to us is lost. But in reading from your book, the children of your thought creep feebly on their hands and knees, and I would even follow the book myself, gramercy."

"The children of your thought?" repeated Merrick, questioningly.

"The image of the mind whereof you speak," said Ashembe, struggling to make himself clear. "You read to me, 'the brontosaurus is a sauropod' but in my mind I see you have in yours no picture of the brontosaurus, no living thought of sauropods. All, all is words, beyond the ken of vacant heads."

"I like that," murmured Merrick. "Vacant heads!"

"Have I unwitting wrought your senses harm?" queried Ashembe, with anxious courtesy. "I crave forgiveness. Read me further." And that evening, like the previous one, saw us alternating at the International Encyclopedia while our guest from another planet slumbered before the fireplace.

"Your information-book is faithless," Ashembe told us the next morning. "It halteth always at the verge—I would dig deeper in your mines of knowledge. Do you sense more?"

"Not much more than the encyclopedia, I'm afraid," I said. "Neither of us is well posted on science, except for a little corner of knowledge. I have looked into the fungi some, and Merrick understands birds."

A LIGHT seemed to dawn on our visitor. "My friends, I have not asked you of your argosies," he said. "What they are? It is improbable that you are to sciences of me unknown?"

"Argosies?" I asked, not quite comprehending. "An argosy is a ship—something that moves on water."

"Forgive the halting utterance of my tongue," said Ashembe. "Argosies—I would inquire your arts, your merchandise." He moved his hands, helplessly.

"Oh, he means what do we do," Merrick broke in. "I am a lawyer——" there was no comprehension on Ashembe's face—"that is, I . . . well, see here. The relations between men are governed by rules. I am one of those who interpret the rules. Suppose there are two men. Each of them says, 'This is mine.' One of them comes to me and I try to find out if it really belongs to him. If it does, I present proof and they give it to him."

"Oh, hell," said Ashembe (for some reason he had acquired the idea that this was a particularly fine way to begin a sentence) "you are an arbiter of destiny. I comprehend. May you be happy." He touched his forehead and bent his knees in the formal gesture of congratulation we had seen him use but once or twice before. "In my world such are high art men and are held in great honor. To you they bring their arguments; you say to one 'You are right. It is yours.' Like Portia. Tell me, is this the meaning in your tongue?"

"No, not quite," said Merrick patiently. "The man who decides is the judge. In this country he is assisted by twelve other men who are called the jury. All I do is bring the truth out for the judge and jury. I represent only one side of the argument."

"The other man of the argument, he does also have a lawyer?" queried Ashembe, in some astonishment. "Improbable! Twelve—fifteen men for one dispute. But you are great in art to thus give your time to others. By what art do all these earn their gold and good. They are workers with hands?"

"No," Merrick went on, patiently. "The man I am representing pays me, and the man on the other side pays his lawyer. The judge is paid by the State, but the costs of the action are supposed to be paid by whoever loses the case. Judges don't have anything else to do."

"Important!" declared our guest. "You gain gold by coming to judgment. But how do you decide aright? The man you represent might be wrongdoing, but have great lawyer. In my world it would be crime to give any man of justice money. It would make man with best brains always serve those with most gold. Your men in argument why not tell stories immediately to the judge and the jury? Else judge and jury make mistakes."

"They do that all right," said Merrick, evidently in some embarrassment under this criticism, "but how do you make sure that a man knows all the law in your courts?"

"We have the arbiter of destiny, like a judge," said Ashembe. "The men of the argument tell their ownership to him. If they disagree he names a—a pollave, who around him gathers all the facts. All men are made to leave their arts and come at the pollave's call. But only high art men are made arbiters of destinies. The laws, the rules, we teach them to children. So many they are in this country you need interpreters and representatives?"

Merrick nodded.

"Important! Such would be crime in my world. Like crime of giving money to justice men. . . . But hold! I recollection. Long many years ago we decided arguments like you, save for one word. The lawyer on the wrong side from him they took gold equal in direct proportion to that gained by the right side of the argument. Thus all lawyer was sure to be on the right side. But that was long many years ago. Your judge and jury is very behind," and with a contemptuous gesture for the American legal system he dismissed the subject, and, turning to where I stood grinning at Merrick's discomfiture, asked me, "Your art, what is he?"

"Oh, I sell bonds," I answered. "When a man wants to go into business and has not money enough, he borrows from others and agrees to pay their money back together with more out of the profits of his business. These promises he puts in writing, and the writings are called bonds. I sell them to people who wish to lend money."

"How is it good to you?" asked Ashembe. "Gramercy for your courtesy, my friends," he went on with a smile, "I do not well understand the meanings of your primitive institutions. They give you gold for sell these promises to pay back money lended?"

"That's it," I said. "You see, it's not always easy to sell bonds. The men who have money may not want to lend it or they may not know anything about the man who is going into business. So I have to tell them how good a thing it would be for them to loan their money on these bonds."

"No scientific board is yours? Improbable! You sell them something they do not want and they give you gold for doing it. Your world is strange. . . . I do not understand. It must be great waste of the good labor if so much effort must go to pay men who loan money and men who sell bonds. They do not do you useful works at all. All idle, like parasites. On my world, when man would go into the business he must be permitted by scientific board, who look at his attainment of art of business and ask, 'Is the business necessary? If he need articles, scientific board produces them, but not make him pay out his profits on work to parasites."

It seemed about time to draw the conversation to a close.

CHAPTER IV

WE sat on a ledge of rock among green-black shadows from the pines. All about was the fluid splendor of late summer, hot and unquiet, with an indefinable feel of life and movement even in its silences. Ashembe, uncomfortably warm, dipped his hand in the water and drew it across his forehead.

"Yours is the hot nation," he said.

Merrick grinned. "You ought to be in New York," said he. "This is just cool enough to be pleasant."

"In my world is colder," our visitor went on, as though he had been interrupted while telling something. "Gabo is great necessity. We shall how otherwise keep ourselves warmed and lighted. Our sun burns small with resultant decrease in illumination and calories. Locked in all atoms are reservoirs of power and light, but only from the atom of gabo do we secure the means of release ec—ec—economically. Therefore of our little mine of gabo we expend much in sending scientific to other worlds for great quantity."

We turned toward him together. "So that's why you came," I said. "I wondered, but it wasn't quite polite to ask."

"Which is polite?" inquired Ashembe innocently. "Is it the local moral code? In my country, if man wishes to know informatively he asks."

"Not a moral code," I attempted to explain (I was always being caught in something like this by our wide-awake and inquisitive visitor) "but a code of—well, manners. Politeness indicates that one is of good breeding, of good behavior; will not do things that offend other people. It's a social code."

"But you have those who offend others because they are not of the good breeding?" asked Ashembe, dabbing his hand in the water. "Astonish! In my country the social code is more simplicity. It is the rule always to be fair. Your polite code must be very complication."

"It is," Merrick chipped in with feeling. "I suppose, though, that in the long run all social codes are based on that rule of being fair to everyone. It has merely acquired complications in the course of time and the working out of details. It is not polite to ask people about their reasons for doing things because a good many people do things or have reasons for doing things that they do not care to admit. They might feel them a trifle discreditable."

"Improbable!" said Ashembe. "In my country could not be. Attend—my entire name are Koumar Ashembe Bodrog Fotas. Koumar Ashembe are merely personal. Bodrog indicates I am of the hereditary exploring* or war-fight science; Fotas indicate my rank in identical class. All the people thus named in my country. But speak—actions of crime are they still so many in your nation that people conceal not only thoughts but also actions? You do not eliminate crime tendency children?"

"How can we?" asked Merrick. "A man may be perfectly all right till he gets to be thirty years old, and then blooey! He blows off and murders somebody or commits some other crime."

"Not. Never." Ashembe was positive. "Psychology is behind science with you. I tell you what we have found in many years. No man makes first crime at thirty years age. As the child he performs small things like purloining parents' tickets or telling small non-truths. Nobody notices. But when the same child grows he becomes large crime. In my nation once every month, each child is examined with truth-serum and inquired about all his actions. If he shows crime tendency, we examine very carefully by scientific board. All are treated in direct proportion to amount of crime tendency. Some we do cure with the Tensal and drugs. Some we do sterilize to not reproduce. The bad ones we dead."

"You execute little children?" I said with something like horror.

"Certain," said Ashembe, firmly. "Wherefore not? Is cheaper, less harm to rest of people than spending great sum on education of these, allowing same to grow and commit crime before execution. Your system all weak. You take revenge on criminal. We prevent crime."

"But don't you think," said Merrick, up in arms at once over this system of jurisprudence, "that some of them would make useful citizens if they had the proper training? We find it so."

"Not," declared Ashembe. "Deep crime tendency is ineradicable. Your scientists know the laws in physics, also in chemics, also in optics. It is aberrant they do not know psychology governed by equally firm laws. No hope is for child with crime tendency so strong as those we dead. It is measured on scale with scientist instruments, following application of Tensal and truth-serum. You do not have the truth-serum?"

"Yes, we have something like that," said Merrick, "but it was only recently discovered and its use is far from general. People distrust it. . . . How many children do you execute in a year?"

"In one annual revolution of planet about solar sphere, one or two entire planet, yes? Ten or fifteen we sterilized. Rest, one hundred in year, with cure with Tensal and drugs."

I thought I detected an inconsistency. "Why do you execute some and only sterilize others?" I asked.

ASHEMBE smiled in his superior fashion. "Only very bad ones we execute," he answered. "Those we sterilize the scientific board tests and finds in them that they have very good brains of high service. Psychological law that men of high brains—how do you say it, genius?—one of every three has crime tendency of one kind. They would make slaves of people, or acquire all wealth for them or bring the purple panoplies of war-fight. Also is psychological law that children of genius with crime tendency have crime tendency without genius. But it is great loss to world if we execute genius men who might make civilization advance very rapid. We sterilize them and put them by very close watch so they do not make the crime, and they do us great works. Solely when the child has deep crime tendency and very small brain we execute."

"But if you can cure mild tendencies toward crime, why can't you cure the rest?" asked Merrick.

"Our civilization is there point defective," said Ashembe, frankly. "What use? We cure with the Tensal." He indicated the helmet apparatus he had worn with a motion toward his head. "The Tensal makes the man to sleep and we cure crime with what your knowledge book says mesmerism, hypnotism. Very good for imparting knowledge when the man is willing, but to eradicate some things, like crime tendency, not easy. The man who wears Tensal while he is being eradicated of some thing makes psychological struggle against it. Some men must acquire dominance over their mind. This weakens the brain and makes it not so good. If crime tendency is small, weakening man is small, man is not hurt much, and will make useful manual labor. If the crime tendency is large the man can be dominated but the brain is stress too strong and he becomes the idiot. Viz, when we find the genius with crime tendency we only sterilize and not try to cure; we might cure, but we would have the idiot and not genius."

"Sounds logical, but it must be bally unpleasant for the geniuses," murmured Merrick, and then to change the conversation to firmer ground, "But tell us about gabo. What is it? Is it a metal?"

"Affirmative," said Ashembe, "what is your better affirmative word? . . . Gabo is the metal with bright metallic luster. We find in ore of ruddy color, chemically united with sulphur. Preparation is by roasting and distilling. Spectrum has bright yellow and green line and smaller red, blue and three violet lines. I am not remember numbers of these. Atomic structures is of tenth rank, third order, decahedral pattern. Is liquid at this tottitude and heavy. Close like cadmium. You do recornize?"

I looked at Merrick and Merrick looked at me. "Liquid, did you say?" I asked, "and a metal? Why, that must be mercury or something very like it. It's the only liquid metal I know of."

"Mer-cu-ry," repeated Ashembe. "Pause." And he trotted off for the shack to return with the M volume* of the encyclopedia and his Tensal helmet. "Read me," he said, tossing me the book, and settling himself in the shade against a moss-covered log.

When I had finished the brief article, which is all the encyclopedia allots to the subject of the occurrence, properties and uses of mercury, our guest rose, fumbling with the keys of his Tensal helmet.

"Mercury!" he cried, "I have achieved! This is truthful gabo, and I am cursed of my world to find. You have it of common occurrence in this world. Your knowledge book declares thus. Where to get it is next problem."

"It shouldn't be difficult," I remarked. "I fancy that plenty of it could be had in New York. How much do you need?"

"Five hundred kilograms last us for many century," said Ashembe. "I give formula for Tensal or heat-gun in exchange. Is it worth?"

"Ye—es," I said rather doubtfully. "I don't know whether I can make it clear, but articles of that kind have to be patented, manufactured and marketed before you can get much money out of them. It would probably take you two or three years, at the very least."

"Astonish!" said Ashembe. "Oh, hell, I forgot you use metal for exchange medium. Gold?"

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*Evidently Ashembe, in his ignorance of English, did not quite mean what he said here. Later on in the narrative, Mr. Schierstedt makes it abundantly clear that hereditary classes, as such, have no existence on Ashembe's planet.

*Evidently, the evening readings of the two friends to Ashembe had not progressed as far as M in the encyclopedia yet. They had apparently gone beyond C, however, since Ashembe mentions cadmium.

"Yes; silver too. And how are you going to get back with your mercury?"

"Great simplicity. Construct Shorary like this I make arrival," he swung his hand toward the spot where his traveling car lay in the water. "With mercury not difficulty. But you need the metal exchange medium for mercury . . ." he ruminated for a moment . . . "Oh, hell, I make gold for you. Silver, I know not. You obtain small quantity of mercury and I will erect all gold desirable."

"You can *make* gold?" I asked.

"Certain. Other metals also from those of same system," he assured us calmly. "Mercury not. Calcium not. Antimony can make. Gold can make—almost any metal out of another of similar system. Copper not rare, no?"

"No, copper isn't rare and it's fairly cheap," I assured him.

"Easy to do. Will make multiple gold for your entire world, to end shortage thereof under which you suffer."

He rattled on, but my thoughts had gone off at a tangent. Vague pictures of what might happen if this disconcerting visitor got to New York and began to let loose a cheap and easy process for the manufacture of gold rose in my mind. After all a civilization is based upon its media of exchange. Gold unseated from the position it had held for centuries would mean—what? The governments of the world would suddenly find the funds in their vaults worthless, the power of the purse, which is the ultimate ruling power, struck from their hands. A return to the rule of the sword?—to the primitive commerce of barter? . . . after all would we be doing well to take this extrordinary man to New York as we had planned?

But, I thought, who am I to be a guardian of society? Governments have met emergencies before and swum through them. What the devil! Why borrow trouble?

"Come on, let's have dinner," I said, rising. "Where'd you put those rabbits, Merrick?"

CHAPTER V

THE time we could spend at Joyous Gard was nearly up. Already a September chill had come to the nights, and the wintergreen berries were showing red warnings of coming frost. There were more letters from the office and they had assumed an anxious-querulous tone indicative of the writers' desire to have someone come and make decisions for them. Why is it that the best of subordinates will avoid responsibility, as though dismissal hung on every action?

The problem of what to do with Ashembe when we left had formed a ground-swell to my conversations with Merrick for the past three weeks, and it was now becoming insistent. Our original intention had been to take him along, introduce him to the head of some chemical company (where his knowledge would doubtless make a tremendous fluttering in the dove-cotes) and leave him to his own devices.

But I, at least, was coming to doubt the wisdom of such a course. It was not that they would take him for an impostor or a maniac; we had too much confidence in his intelligence and ability to believe either for a moment. Nor was it exactly the fear that he would upset the complicated structure of finance with his simple process for the manufacture of gold. Humanity has an unlimited capacity for muddling through just such difficulties as this, and there was no reason to suppose it would be less successful than in the past.

It was rather Ashembe's own ideas and ideals that had brought about a disagreement that made a change of plans necessary. And it was something far more difficult to deal with. The thought had occurred to both Merrick and me that a man as guileless as this visitor from the depths of space, possessed of such secrets as the heat-ray flash and a means for making gold from copper—and God alone knew what else!—might very easily fall into unscrupulous hands. Murder has been done for information of far less value than either of these, and everyone can remember instances of stolen formulæ too numerous to mention. One recalls Diesel.*

We tried to explain this to Ashembe, begging him to intrust us with his formulas in order that Merrick might have them patented. To our fears about his safety he retorted only with polite gibes on the moral standards of this imperfect earth, and to our plan for patenting his information he raised an objection so serious that the whole scheme of taking him to New York was upset. I can only relate the incident as it occurred; or rather one of the conferences about it, for otherwise it would seem incredible that three minds with the same end in view should hold so obstinately to their diverse methods of reaching it.

"Oh, hell, my friends," quoth Ashembe. "You say if you have this thing patented, only I can use. But such an eventuality would be crime in my country. I am criminal if I detain information to benefit to all males and females for personal utility. How now, good sirs?"

"But who in your country is going to know anything about it?" I asked in uncomprehending irritation.

"I am obligated to fill out one report on all actions of scientific import since leaving Murashema," was Ashembe's reply. "What then if I insert in it my report statements of falsification? What then if I commit it worse falsification by suppression of the evidence? I could not accomplish this."

"Why not give us your formulas, then?" said Merrick, "and let us operate them for you. If you give them out publicly, no chemical firm will agree to furnish your mercury. They will gain nothing from what everyone else knows. And besides, if you give a gold-making formula to the public, everyone will be making it, and it will be so worthless you will be unable to buy mercury with it, no matter how much you have."

"That is due to terrestrial defective metallic coinage system," said Ashembe solemnly. "Readily would I give the information to you, provided you obligated your personal selves to spread the said information to your entire world. But to give formulas to you for your own benefit would be causing you to commit the same crime as myself; and I would thus be no less guilty. The only non-criminal process would be thusly—to give formulas to the scientists of the world and permit them to reward with mercury or other matters. Also there is other consideration. You declare it will take long to patent articles and build machines and purchase mercury; also refer to inferior morals of this orb of day which causes men to dispossess others of rights in processes. If I give the formulas to scientists, no one can steal because all will know."

Merrick shook his head. "You don't know this world," said he. . . . "Not that it's altogether an ungenerous planet. But it would take months or years before any scientific society or government would give you any kind of reward for a thing of benefit not to an individual but to the general public. Such things are done so slowly that discoverers are often not appreciated until after their death—and there's always the question whether an unlimited supply of gold would be a benefit to the general public. . . . About all the reward you'd get at once would be jealousy and hatred."

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*Who fell (or was pushed) overboard from a cross-channel steamer in 1913 while he was on his way to sell, in England, certain formulas for improvements on the Diesel engine. To say the least his death was singularly opportune for a German government which one year later began a war in which submarines (with Diesel engines) played a large part.

"But why announce it to the general public?" I put in. "Couldn't Ashembe take the question up with some small group—say the scientists at the American Museum?"

I received a scornful glance from Merrick. "You know how long it would be before the whole thing was public property, don't you?" he inquired. "Why, just in ordinary conversation, enough would leak out to get some reporter on track—and you know what that would mean."

For a moment there was a silence as we ruminated over the apparently impassable difficulty we found ourselves in. Merrick was the first to speak.

"Candidly," he said, "I don't see just how we can reconcile Ashembe's principles with his practical difficulties. It isn't that we don't appreciate how you feel," he turned to our visitor apologetically; "Indeed we're quite ready to admit that you have a higher moral standard than ours. But we must take account of the difference in customs. Now that I come to think of it"—he interrupted himself and regarded Ashembe speculatively—"your appearance alone would create a good deal of bothersome comment."

And in truth, with his head as bald as a billiard ball, his curious-looking clothes and his long, delicate, almost tentacular fingers, Ashembe was not the sort one meets on the street.

"What we need," Merrick went on in his best "gentlemen-of-the-jury manner," "is a compromise by which we can adjust Ashembe's standards of justice and the practical difficulties of the situation. He wants us to give his formulas to everyone. But as he has thus far given it out to no one, why not continue in that way? Would it be all right with you," he turned to our guest, "to regard our world as simply not yet far enough advanced to make the proper use of your formulas? Frankly, I think it would be for the best. If you feel that you wish to reward us with something besides gold, you can write out some of your formulas and leave them in trust with a Board of Scientists, not to be opened or used until some future date. This form of trust is fairly common with us, and is never violated. And if you wish to give something of immediate value to the public, why not the means of making your Tensal helmet? That would be of the highest value."

Ashembe nodded thoughtfully. "Such would be the upright course," he admitted with some reluctance, "but leaves me feeling ingratitude. I could so much help you and not to do!"

"Still, there's no use teaching us to fly till we have learned to walk," said Merrick. "We find in this world that we cannot civilize a race from the outside. It must work out its own destiny."

"But if you do that, how is Ashembe going to get his mercury?" I broke in. "He can have all I can buy for him and welcome, but I rather fancy it will take more than that for his needs."

"Why, that's simple," said Merrick. "We'll bring him a little mercury right here, and he can set up his gold-making plant to pay for it. If he needs assistance in the work, we could even hire a mechanic or two, so long as he would make enough gold to pay their wages."

"Finished," said Ashembe, touching his fingers to his forehead. "Gratitude for your plan. It is scientific to me."

And with that we left the thorny subject to turn to more congenial topics of conversation. Ashembe was to stay at Joyous Gard, as we finally worked out our plans, with one of us to keep him company and take the deliveries of materials that would be sent from New York. We spun a coin to decide who should go, and for better or worse the lot fell on Merrick. I was to stay.

CHAPTER VI

FOR three days rain and high winds had held us close to camp. These mountain lakes can kick up nastily in a gale, and it was no time to venture out on so small a sheet of water as even Sunderland, with an inexperienced canoeist in the bow, especially since the things Merrick was sending from New York were likely to prove heavy.

It was nearly a week in fact, from the time of his leaving, when we managed to make it. After covering the three-mile walk to the station (where I found our boxes had filled to overflowing the diminutive "Baggage Room") I succeeded in locating a farmer with an asthmatic Ford truck who agreed to carry them down to the landing for us. Like the station master and the three or four fuzzy youths who hung around the depot, he was obviously agog with curiosity about this influx of boxes.

"What are you fellers going to do—build an airplane or start in the bootleggin' business?" he inquired as he cranked his wheezy steed.

"Ah, no, nothing like that. Just a little scientific work at the shack," I parried.

"That's interestin'," Silence for a moment. "There was a bunch of fellers up here a couple of seasons ago doin' that, too. They had a lot of little cages, and all they done was tumble around in the swamp and catch frogs to put in them cages, fur as I could see. Durndest performance you ever seen."

No reply.

"I hear you got a furriner up there."

I managed to dodge that one, too, somehow, but I perceived that the local taste for gossip might prove an inconvenience.

Merrick's boxes were heavy and we could not well take more than one in the canoe at a trip. When evening put a period to our labors, not more than half of them had been carried across, and our bunk room was already piled high. I was tired and Ashembe, evidently unusued to such strenuous exertion, was completely done up.

"I do not like these primitive systems of manual transportation," he complained bitterly as we tumbled into bed. "In my country such things are not at all done. I will demonstrate when apparatus is constructed."

The next day we were at it again, and by noon we had succeeded in completing what seemed the millionth trip with the last of the boxes. They filled the bunk room, all but a narrow passage, cluttered up the living-room-kitchen and overflowed into the back yard, where I had to spread my best rubber blanket over them to keep off the evening dews and damps.

I will say that Merrick had used both care and intelligence in his selection of equipment. The first thing we opened proved to be a small dynamo, with an ingenious arrangement for operating it by acetylene and a supply of carbide. Ashembe took one glance at the printed leaflet of instructions and trotted off for his Tensal helmet to have them read to him. By the time night came, we had the dynamo set up and running nicely, or rather Ashembe had, for my part was confined to following his directions.

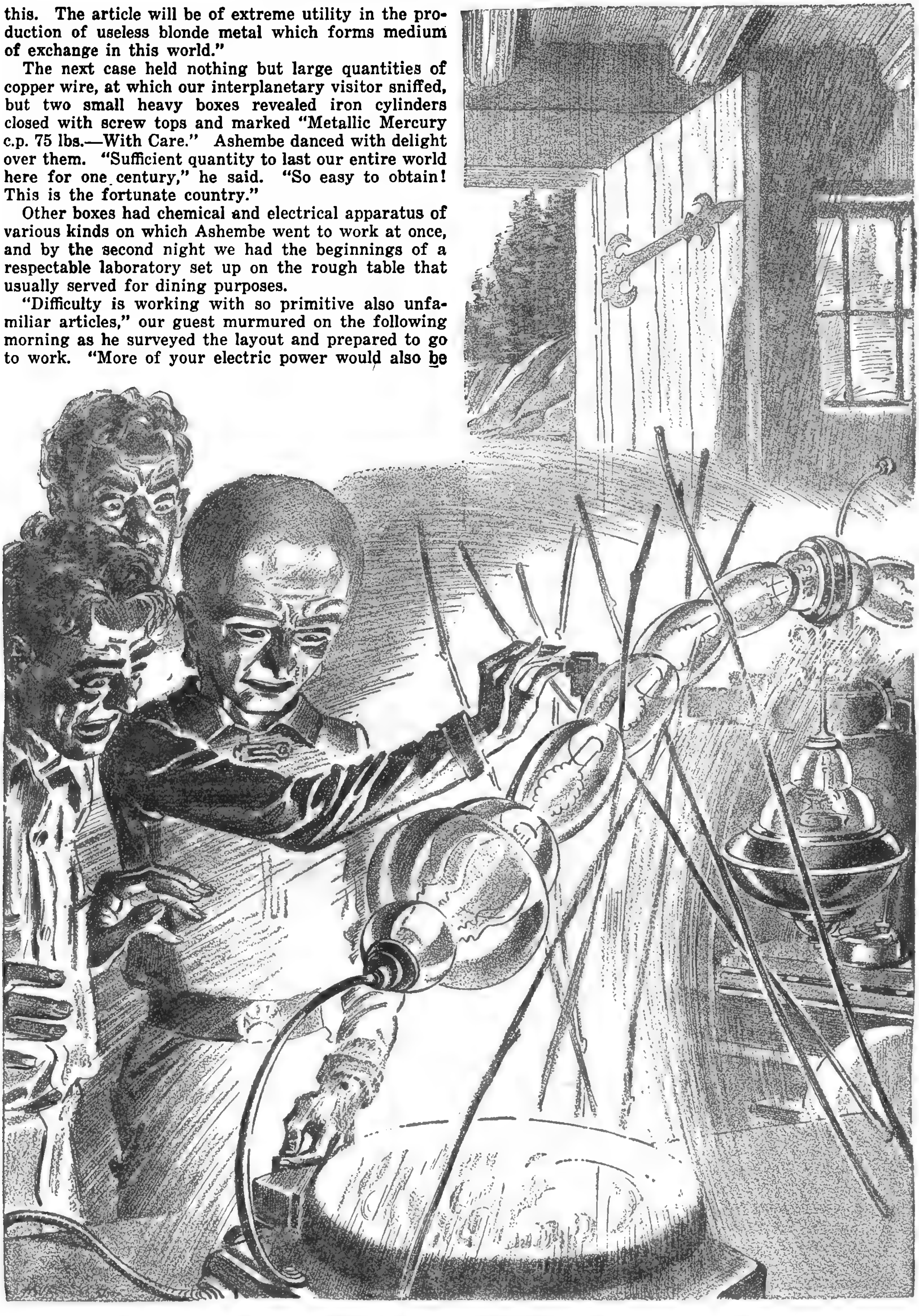
"Simplicity," he remarked as he watched it spin. "It is old form of electrical power used for children play in my country. All replaced for serious work by gabo power machines at present moment."

The next day we went at the boxes again. There was a small crucible with an electric heating unit, about which I knew just enough to explain its purpose. Ashembe poked a curious finger into its intricacies for a moment and nodded his head vigorously. "I comprehend," he said. "It is the pleasure he has forwarded this. The article will be of extreme utility in the production of useless blonde metal which forms medium of exchange in this world."

The next case held nothing but large quantities of copper wire, at which our interplanetary visitor sniffed, but two small heavy boxes revealed iron cylinders closed with screw tops and marked "Metallic Mercury c.p. 75 lbs.—With Care." Ashembe danced with delight over them. "Sufficient quantity to last our entire world here for one century," he said. "So easy to obtain! This is the fortunate country."

Other boxes had chemical and electrical apparatus of various kinds on which Ashembe went to work at once, and by the second night we had the beginnings of a respectable laboratory set up on the rough table that usually served for dining purposes.

"Difficulty is working with so primitive also unfamiliar articles," our guest murmured on the following morning as he surveyed the layout and prepared to go to work. "More of your electric power would also be



Ashembe threw off the switch of the crucible and simultaneously turned on that of the tube.

the desideratum, but—" and he twiddled his fingers about expressively, selecting a piece of glass tubing and thrusting it into the acetylene flame to twist it to some complex shape.

I cannot pretend to any knowledge of electrical and chemical processes even in the light of what I have since learned, but from what I made out at the time Ashembe spent that day and most of the next in constructing a vacuum tube of a singular type or rather adapting to his purpose one that he found among the boxes.

When he had finished with it, it resembled a link of sausages rather more than anything else. There were two long portions at either end, containing electrodes of fine platinum wire, feathered out into innumerable tiny points as they approached the center. The central portion, cut off from the rest by notches, held a tiny drop of mercury, and both this portion and the notches were wound with thin strips of metal which Ashembe cemented down with extreme care. The whole tube was slightly curved, still more increasing its resemblance to a sausage, and the ends containing the platinum electrodes were painted black.*

ASHEMBE regarded the completed product with some disfavor. "The imperfect apparatus," he said skeptically. "Perchance it will operate, perchance not. It is to be seen."

His next step was to set the crucible on the table and, connecting it with the dynamo, to jam some of the copper wire down into it. A rude structure of rods cut from green maple (I was the mechanic for this work and a very poor one, too) held the tube in position slightly above and to one side of the crucible, and this also was connected up.

"The trial of strength is at hand," said Ashembe sententiously. "Preparation! Let us desire that no discomfortable gases similar to carbon monoxide are in atmosphere. Otherwise copper in this crucible will absorb and depart them with explosive violence on cooling."† And he threw the switch of the crucible.

As the hum of the electrical heater rose, I heard the grating of a boat at the beach and stepped to the door. A more unwelcome time for an interruption it would have been difficult to conceive. A tall young man, with a prominent Adam's apple showing above his low shirt collar and an indeterminate straggling mustache on his face, was picking his way among the tree-roots toward the shack.

"What is it?" I asked somewhat crossly.

"I beg your pardon, sir," said the apparition in an astonishingly rotund voice, with just a trace of the Yankee twang in it. "My name is DeFred Stanbro, and I understand that you are conducting scientific experiments of a chemical nature here. If it is not too much of an intrusion, may I be permitted to observe and perhaps assist in your work? I am the school teacher at the Tutwell school and am deeply interested in the study of chemistry, for which I find few opportunities here. If you will permit me to observe your work, I will be glad to give you my assistance without charge so far as possible."

"The experiments are private—" I had begun, being fully of a mind to send the intruder about his business, when I heard Ashembe's voice behind me.

"I grant you grace," he said. "Enter herein if the owner permits." He glanced at me. What could I do?

"Mr. Stanbro," I said, hastily reversing myself, "meet Mr.—ah—Fotas. He is a foreign chemist who is conducting some rather delicate experiments and came up here for the sake of quiet." Ashembe touched his forehead courteously, and the young man, his adam's apple working convulsively (one could not keep one's eyes off the thing), followed us into the shack. (Why in the world did Ashembe want this half-baked specimen around?)

I was not long in doubt. "You are the chemist?" he asked the visitor. "I am unknown with much of these instruments and you are of assistance to me."

"Well, I know quite a lot about chemistry," said the school teacher, shifting his feet earnestly. "You see, I took it in high school, and after I got to teaching school myself, I began to take up both elocution and chemistry with the aid of a correspondence course from the National Correspondence School. I intend to become a lecturer in chemistry some day." He began to fumble among the papers in his pocket.

"You have some very interesting apparatus there," he went on with hardly a break, goggling at the crucible, from which a wave of heat was now perceptible, and without noticing Ashembe's glance at him, in which gratitude for a new source of information and a sort of pathological interest in this singular specimen of humanity were about equally blended.

"Ah, it is an electric crucible. If it is not too much of an intrusion, may I ask what is the nature of the experiments you are carrying out? I am particularly interested in thermo-chemistry just now, as my last lesson from the correspondence school concerns the heat of solution and thermochemical reactions." He seemed to have found what he had been fishing for in his pocket and extended a pamphlet toward Ashembe.

"I am making the experiment to transmute metals," declared Ashembe calmly, looking over the pages. I saw the ghost of a smile about his lips. Apparently he had formed his estimate of DeFred Stanbro.

"Transmute metals," said Stanbro. "But—but—but that is quite impossible. Except for a few of the radioactive elements which break down very slowly, the atom is indivisible." He appealed to me. "If you don't wish to tell me what you're doing, all right. But I beg you not to make fun of me."

Ashembe smiled. "I will explanation," he said simply. "You know the atomic structure. It is little sun with revolution electrons around the same like the system of planets. You know the solar system structure? What if other sun is brought close to our sun? Catastrophe! Planets go off in all directions by gravitational attraction. What then if we can bring other sun in atom system close to already sun? What then? Planets of atom fly off in direction. Atom is exploded up; no longer same number of planets, less or more. It becomes the other kind of atom. You understand?"

"Oh, yes," said the school teacher fluently. "I understand all right, all but how you're going to do it. It can't be done. It would take a million years for another star to approach the sun near enough to produce such a catastrophe, and the space between the atoms is comparable to the space between the stars. It takes a long, long time for even the radioactive elements to break down. You can't do it as fast as that with the ordinary ones."

"Not?" Ashembe replied. "What then if external force is added to speed of sun and attendant planets? They move already and they would move more rapid. So I apply external force to speed of atom. You do not know in this world because your knowledge book does not speak of, but there is force that will do, force of already exploded up atoms. In tube (he patted the tube he had made lovingly) I have apparatus for break up atom of mercury. Broken up atom of mercury speedily active, sets other atoms of some elements breaking up if application when they are fused and extremely hot. You will see. Observe comparatively worthless copper in this cru—crucible. I am now fusing same. In the few moments at high temperature emanations will be applied to speed up action, causing collision and catastrophe in sun of atom."

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*Apparently something like a modification of the Coolidge tube, to judge from Schierstedt's rather sketchy description. The Coolidge tube will not produce the results he describes, however, nor will any known modification of it. Perhaps his interplanetary visitor had something in the center of the tube besides the drop of mercury; or again, the secret may have lain in the metal strips wound about it. At such moments as this, one regrets that the writer was not a trained scientist.

†Why should it? Molten copper does absorb gases, which it gives off on cooling; but as will be seen, Ashembe did not have molten copper for very long. Evidently some unfamiliar and obscure chemical reaction took place.

While they were speaking, the copper in the crucible had been gradually melting down; the lines of the wire grew blurred and indistinct, coalesced, overlaid each other, finally appeared only as eddies in the slowly moving mass from which a thin smoke rose as the electrodes did their work.

Ashembe watched it cautiously, his hands on the switches of crucible and tube. "Insufficiency of electrical power," he murmured. "One is turned off as other is applied, but should not do in that manner." Stanbro gaped over his shoulder as the ruddy mass swirled under the fierce heat, turning greenish and tarnished-looking at the top.

Five minutes more—ten—fifteen went by as we waited. Then, so suddenly it made us jump, Ashembe threw off the switch of the crucible and simultaneously turned on that of the tube. There was a flash of vivid violet lightning from the tube, so strong that it seemed almost to have substance, as it cascaded into the crucible and the mass of molten copper. A report like a thunderclap shook the building, and there was a shock that almost hurled us from our feet. I saw a little pillar of smoke or steam soar up from the crucible, the dynamo stopped suddenly in a shower of sparks and "Heavens and earth!" said DeFred Stanbro.

Ashembe began poking at a rapidly solidifying mass in the crucible with a stirring rod. Leaning over his shoulder, I could see that the vessel held a particolored lump of metal, green with verdigris, white with oxidation, but with little bright sparkles running all through it.

"It is success," he proclaimed triumphantly. "In despite of inefficient materials, those spots they are gold."

"Is it possible?" came the clack of the school teacher in awed tones. Then, as though something struck him suddenly, "I haven't any money. I can't buy any stock in it."

CHAPTER VII

THE ungainly lump of metal that resulted from Ashembe's experiment was pried out of the crucible after an hour or so of waiting had left it cool enough to handle with tools, and placed in a big glass mixing bowl to be attacked with nitric acid.

"Extremely ingenious," Stanbro, who had unfortunately recovered the full use of his tongue, called it. "Nitric acid has no action upon gold, but does react with copper, and the residue will therefore consist of gold."

Applying the acid proved a stinking process, productive of heavy, nauseating fumes which Ashembe warned us against allowing ourselves to breathe. After a quarter of an hour of it, I made him take the bowl out of doors to complete the job. When he had finished (which was not until late in the evening) the bowl held an irregular pitted mass of bright metal of about three pounds' weight that stood up like a sea-crag out of a dull brown liquid.

"Gold," declared Ashembe, fishing it out with a stick and tumbling it about unceremoniously among the leaves to dry the acid off. "Residue in the bowl consists of nitric acid with amounts of nitric of copper and silver in solution. If apparatus had been perfection, all would be gold and silver. At present, result is only portion of gold. Small amounts pass off as argon gas. But dynamo is damaged."

"Looks like gold, all right," Stanbro admitted reluctantly. "Why there must be a thousand dollars' worth there—enough to buy half a dozen dynamos like that. This is the most marvelous thing in the world if it's genuine. A man could make himself famous just describing the process."

I perceived the idea that was floating around in his brain. "Look here," I said, "I hesitate to mention it, but we must pledge you to secrecy about this. This is a scientific experiment, and is as yet a costly and imperfect process. And if any news of it gets out to the general public, we're going to have all kinds of trouble. It might give the wrong impression."

"Oh, of course, of course," he said volubly, his adam's apple jumping up and down. "I wouldn't dream of telling anyone about it. You may rely on me. . . . Would it be an impertinence to ask your permission to return tomorrow afternoon when I am through with my school? I would like to see more of your experiments."

I was of a mind to tell him that it would be a decided impertinence. A fool can often do more damage than a criminal. But Ashembe seemed eager to have him for the sake of what information he could give and there was no question about the usefulness of the National Correspondence School's leaflets. So I gave my consent with the best grace I could muster and turned to the task of packing up Ashembe's gold to send to Merrick, who would render the final verdict on the success of the experiment from New York.

When he had gone I looked up at Ashembe. "Please don't take him as typical of our people," I begged. "He seems a particularly arrant kind of a fool."

"Fool? Ah, a term of opprobrium. I comprehend. No, I do you not injustice. But it is overpowering to see fool as instructor in educational institution. In my country only best people teach. How is it with you?"

I hurried away from the subject. By this time I was prepared to grant that our interplanetary traveler lived in a far better world, or at least one where people were better trained in distinguishing *meum* from *tuum*, and foreseeing the inevitable defeat in any argument about systems, I turned to some other topic of conversation.

The business of the next morning, of course, was to take the package of gold down and get it in the mails for Merrick. By the time I had done this and returned to the shack, it was already late afternoon. I found Stanbro had poked his apple-like face into the camp again and was watching Ashembe as he rigged the dynamo and tube for another go at gold-making.

"By the way," I remarked, "I have an idea. I am right in supposing that in making gold you wish to heat the copper very hot very quickly, am I not? Why not rig up your heat-ray to bear on the crucible instead of heating it by electric power? It would be much quicker, wouldn't it?"

"But that is the war-fight weapon," said Ashembe, "to use in danger time. Could not use for this."

"Why not?"

"It does not only heat. Also destroy. Look." He dived among the numerous piles of miscellaneous apparatus to produce the article in question, and snapped open a key at the side, revealing the inner structure of the apparatus; a little metal cylinder that belled out at the top into what I had taken for a ground glass cover, and was joined at the base by a thin stem to another, flatter cylinder.

"This," he pointed to the latter, "is completed with small amount of—of—I do not know your name—we will call the name 'pleci.' It is very violent chemical element after treatment with emanations from mercury tube installed herewith. In above container," and he indicated the larger cylinder with the bell mouth, "is concentrated fluorine. When turnkey is turned, small amount of pleci released into fluorine. Violent reaction of atomic particles. Electrons and protons shoot forth in state of intense heat and dissociation, like that in yon great orb of day. (The Shakespearean phrasing still occasionally lurked in his speech in this way.) Everything in contact with reaction is vaporized, oxidized or otherwise chemically changed."

HE closed the apparatus with a snap and flashed it briefly at one of the flat rocks near our feet. There was a burning flash and a luminous mist seemed to hang for a second about the rock. When we examined the spot, we could see a round hole of indetermined depth right into the solid limestone.

"But," Stanbro babbled, his eyes goggling, "that's wonderful! But how do you insulate the inside of your apparatus with a thing like that in it."

"That is also mercury tube work. Material of inside of cylinder is argon. Ha, ha, you say but argon is the gas. Ha, ha, I declare to you, your chemists do not know vacuum tube reactions. Argon is the gas, yes, ordinary. But expose to vacuum tube of mercury like this demonstrated herewith, and you have the different thing. Your chemists, to read from your knowledge book, do not know that each element has many forms, identical in tests of chemistry, but differ because electrons are separate distances from central electron sun. Not?"*

"Oh, yes, they do," declared Stanbro with assurance, pleased at being in possession of some small crumb of information this omniscient visitor lacked. "You must have gotten hold of an old book. It has been found that most of the elements have allotropes."

"Ah, they do know. You progress. Gramercy," Ashembe touched his forehead. "Well, then, under mercury tube of type herewith demonstrated all materials possess allotropes. So argon. Gas usual, under emanations is liquid. Will then combine with carbon and remain exceeding inert to all chemical reaction. This is fine insulator for fluorine and also for pleci ray. Over the top of tube—" he touched the screen I had taken for ground glass—"is passage—through insulator of cobalt and argon. Very efficient."

"Oh, I see," I said, "but couldn't you make a heat-flash like that, using something besides fluorine, so it wouldn't destroy everything it touched?"

"Certain. Time and apparatus are the need. I suppose you desire more gold for purchase of additional apparatus? Your world works always in vicious circles. You need material to manufacture articles of utility to receive gold. You need gold to purchase material. Ineffective! Man without gold must remain always without."

"Oh, no," Stanbro put in, taking up the argument. I was too cautious to accept. "A man of ability who has no money never has any difficulty about earning it. We reward ability as highly as any nation in the world."

"So?" said Ashembe. "In my country man who invents receives assistance from all. Do not necessary to sell things."

Stanbro shook off my detaining hand. "Let me explain," he said. "You people from communistic countries have no justification for your assumption of superiority. Our economic system is upon the whole a wise one. Were it not for its provisions, persons of low moral character might readily obtain funds by declaring themselves engaged on inventions of importance. In fact, I am unable to conceive why, under any other system, there would not be a huge number of frauds. I should say that your system would breed immorality, crime and—"

Ashembe coolly turned his back on the spouting elocutionist. "Such is system," he remarked quietly. "I wish apparatus." At least he had given Merrick and me the compliment of discussing it with us.

Stanbro stopped, gulped, gaped a minute and with an expression in which anger and impotence struggled for the mastery, followed us into the shack. He seemed so like an enraged rabbit, in his feeble fury, that I laughed outright at the resemblance and got another black look for my merriment.

Of that afternoon and those that followed for some little time it is hardly necessary to give any detailed history. Indeed, I have spent so long a time over this trivial incident only because it led up to more important matters. The days flowed along in an even tenor of uneventfulness. Every day or two I took the canoe across the lake and walked to the postoffice with packages of gold; each afternoon Ashembe attacked more of the diminishing store of copper wire, while Stanbro watched with an incredulousness that never seemed to diminish. Occasionally, in obedience to Ashembe's instructions, I would write for some new piece of equipment, and as these arrived in the customary cases, ferry them across the lake. The residents of Fort Ann seemed to have lost interest; whether because Stanbro had told them some tall story of his own invention or because the delivery of hundred-pound boxes to Joyous Gard had become a commonplace, I did not know. At all events, I was received with an indifference so complete as to be almost pointed.

And in the meanwhile Ashembe had begun work on what he described as a "cometary car" in English and a "Shoraru" in his own language. It was to be, he explained, a duplicate of that in which he had arrived. The boxes contained, in obedience to his instructions, an increasing number of books on astronomy, chemistry and physics, and of small pigs marked "chrome-nickel steel" as well as tiny, precious bricks of cobalt.

These last Ashembe was converting into a curious structure with some help from me and with what little he could get from Stanbro. I say "what help he could get," for that individual, who had begun by being oratorically unpleasant, had now become sullenly unpleasant, as his sententious pronouncements and efforts to impart information received less and less attention in the light of Ashembe's growing knowledge. The latter, for instance, did not even trouble to explain to him the process by which the little bricks of cobalt were being converted into still more valuable bricks of iridium, nor to describe the process by which he built up a compact heat-flash, somewhat like the "war-fight weapon" he had demonstrated for us, but without its destructive properties. As for me, I was interested in neither.

CHAPTER VIII

THE beginnings of Ashembe's "cometary car" were made in the woods some two hundred feet back from the shore line, where a jutting outcrop of rock made a natural platform about five feet each way. With infinite labor I had cleared off the trees around this rock to enlarge the space to a crude circle something over twenty feet in diameter, and under Ashembe's direction had cut up the trees thus removed into convenient lengths for transformation into charcoal. "Important," he had said, "to have large supply of pure carbon. Charcoal is easy form to refine."

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*It must be remembered that Ashembe got his information from an old International Encyclopedia. Allotropy, or different forms of the same chemical element, is now familiar to all chemists. Graphite, a soft, flocculent black substance, and diamond, one of the hardest and brightest of minerals, are allotropic forms of carbon, for instance; and there are many other examples. As to reducing argon to a solid by means of the mercury tube, it should be remembered that when Dr. Coolidge began to experiment with the tube that bears his name, one of the first reactions he got was the reduction of acetylene gas to a brown solid.

In the center of the clearing, on the rock, he was building his apparatus, not amid a towering pile of scaffolding, as I had somehow expected, but flat on the rock. He began by forming a circular plate of the chrome-nickel steel, flattening and welding it readily with his heat-flash, handling with marvelous dexterity the instrument and the two little spreading tools he had made. As he worked, he treated the plate with the iridium he had made from the cobalt and again treated the whole with the mercury tube.

Using the destructive flash, he now punched a large hole through the exact center of the plate and a row of smaller holes around the edges. From the plate he now proceeded to build up sides, arching them in to form a projectile-shaped whole, almost twelve feet tall, and leaving a small doorway through which a man could just crawl conveniently, near the base. Around the top, at the point of the projectile, the steel was reinforced by a row of thin nickel plates, and the big central hole at the base was similarly treated.

Just below each of the nickel plates, and at one side of the round nickel plate at the base, a little aluminum shelf was welded to the shell. The whole interior of the shell was now lined with aluminum racks, just about big enough to hold the cylinders in which Merrick had shipped the mercury.

This much completed, Stanbro and I were set to work gathering heaps of dead leaves. These were assembled into a couple of good-sized portable bath-tubs Merrick had sent up and bathed in chemicals, then treated with the ray tube and given another chemical bath. When the process was finished, a gelatinous, transparent mass remained in the bath-tubs.

"Atotta," Ashembe explained to us. "What you could call artificial rubber, only different in important characters. Is effective insulator against heat, which your rubber is not. Also effective insulator against shock, which your rubber is. The same is produced from juice of plant in my country, but is more easier to manufacture by synthesis."

He moved off to the shell with a bath-tub load of stuff, staggering under the weight. As he left, Stanbro plucked me by the arm.

"Could you loan me five dollars until my next pay day?" was his unexpected request. "I can make it good—" he shuffled his feet—"but I find myself temporarily embarrassed with paying for correspondence courses and other expenses, and I won't receive my money till next Thursday."

I gave him a sharp glance, and silently produced the money. Why not? It would be just as well to have anyone, who knew so much about what we were doing, under an obligation which, if slight, would be sufficiently binding. He accepted it, thanked me, and then remained for an embarrassed moment, glancing about, as though wishing to say something.

"Well, what's the matter?" I asked, "Need more?"

"I—ah—hesitate to speak to you on so personal a question," he said, "but—ah—are you sure this chap is all right? These foreigners. . . . What country does he come from, anyway? He may be working for some unscrupulous purpose."

(What an arrant ass!) "Of course, I'm sure he's all right," I answered, heartily, ignoring the question about Ashembe's origin. "Do you suppose I'd have him here if he wasn't? And what harm could he do up here in the woods?"

"Well, please don't take it amiss. This gold . . ." he moved his feet again, and his adam's apple worked. "He might be a counterfeiter. . . . That outfit he's building . . . and now he claims to have artificial rubber. It doesn't sound . . . straight to me."

"Oh, you're crazy," I said impatiently. "He's a very distinguished scientist in his own country and quite all right." I turned away, and but for the loan would have forgotten an incident which later circumstances brought to my mind.

Up at the clearing, where the "cometary car" was building, Ashembe was brushing his atotta over the inside surface of the structure, covering it all but the tops of the little aluminum racks. As he brushed it on, it hardened into the same grey, stiff substance Merrick and I had noticed on the inner side of the lid of the car in which he had arrived.

"Finished," he said finally, laying down his brush.

"The whole thing finished?" I inquired.

"Ahno," he said, all one word. "This is only interior• central chamber. Very much more to be made yet."

I gazed at the fat, glittering shape that towered above us. "But the one you arrived in couldn't have been much bigger than this."

"Certain—ly. Action of atmosphere caused the destruction of outer chambers. Also, some discarded in coming here from considerable distance."

I made an inarticulate sound indicating a desire for further enlightenment.

"I perceive non-comprehension," Ashembe remarked. "Mark you well. The propulsive force of the cometary car is the pleci ray. Incidental, I do not find your word for pleci. In travelling, the car goes long distance. Pleci is very little used up but long distances are so long that it gradually exhausts. Consequential, very large quantities is required; the same being stored in outer shells of cometary car, like this in all respects but larger. You follow?"

I nodded.

"Excellent. The next thing is that when pleci in one outer shell is complete exhausted, the shell must be allowed to discard to reduce unnecessary mass. Complete car is made of several shells. You follow?

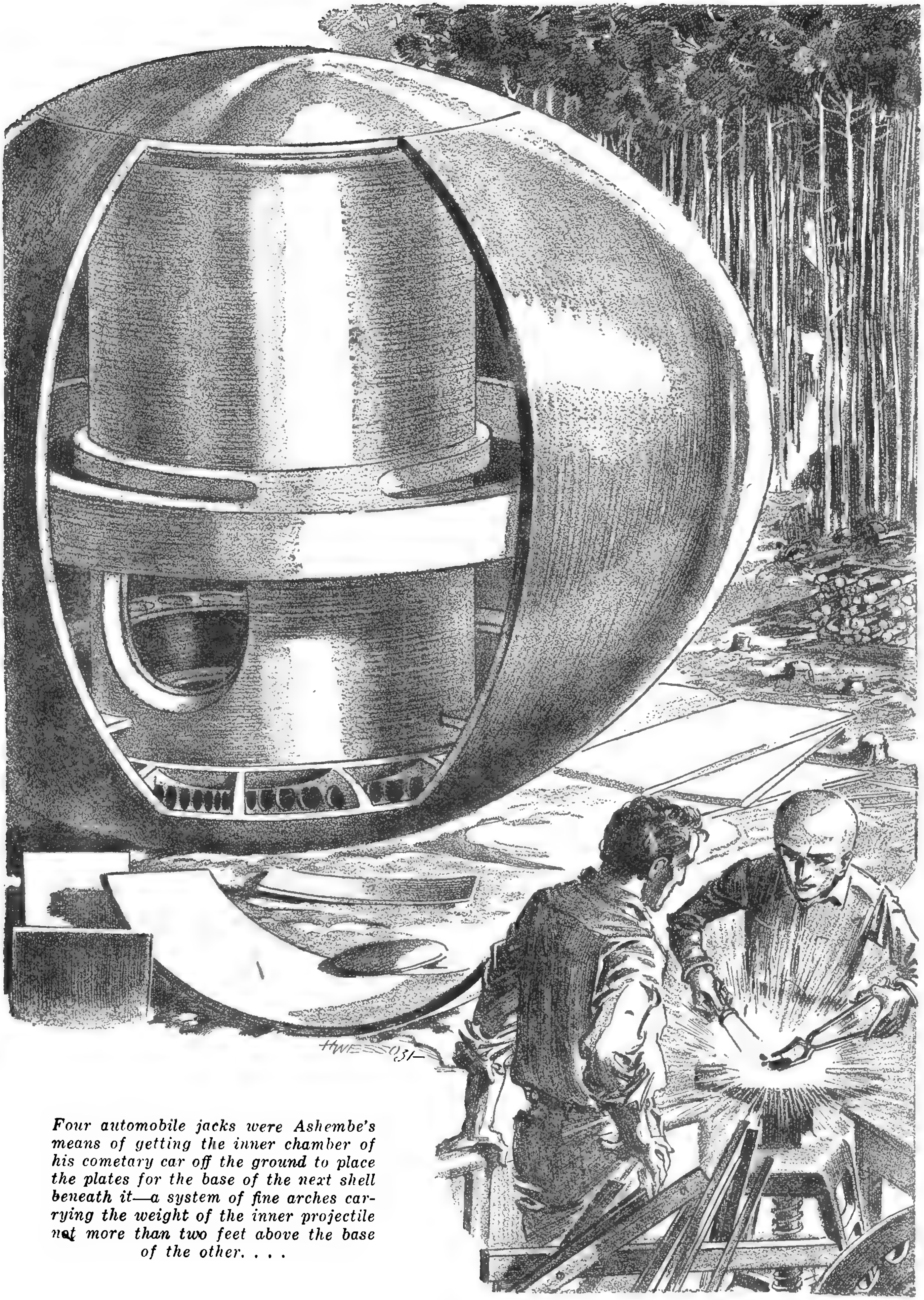
"In order to discard properly, explorer must be able to reach outer shells to cast off when pleci contained thereinunder is exhaust. Consequential, pleci is carried only in the upper point portion of the shell, the same being partitioned off lightly, and lower portion being fitted for access by the explorer, since pleci has corrosive activity.

"Now since explorer must have access to lower portions, he may easily have comfort in them also. Lower portions accordingly receive fittings for living. You follow?

"Last interior shell, but one, is not to discard. Necessary for protection of explorer. Similar to the present instance. Upon arriving at planet with atmosphere, the impact at high speeds maintained by cometary car is very serious. Oxidation of outer shell occurs, and heat would oxidize explorer within unless he had additional protection besides wall of inner shell. I personally was much overcome by heat at the interior of shell on arrival within your atmosphere, and perchance would have suffered complete damage by falling into water or otherwise because unable to rise and steer the cometary car. But I personally had not choice. I had come such long distance that all my shells but one were gone upon arrival. If not encountering your planet, would have failed for lack of materials to eat.

"In early days of exploration by our people many did this same, and many more were oxidized or torn apart by solar attractions within space. You follow?"

YES, I followed—all too clearly. Before my mind's eye rose a picture of Ashembe's home, that Murashema he mentioned always with an almost religious



Four automobile jacks were Ashembe's means of getting the inner chamber of his cometary car off the ground to place the plates for the base of the next shell beneath it—a system of fine arches carrying the weight of the inner projectile not more than two feet above the base of the other. . . .

patriotism. A world like our own, a tiny ball adrift in space; its people harnessing the huge forces of a malign nature through long centuries of development, and as their knowledge grew, faced with the fact that their world was dying, their home surely turning to a ball of ice, within which there can be no life. It would be discussed gravely at meetings of scientific societies, first, as a novel and interesting theory, and then as evidence accumulated, would seep down and down through all the levels of intelligence until the certainty of destruction was ever before all men. Philosopher, scientist and economist would know that death was the only end of their long ages of evolution from the slime, and religion would be asked to explain the fact that man had been created only for the purpose of being extinguished in cold and fear.

Yes, I followed. I could even picture the bankruptcy of spiritual leadership at such a moment, the decay of all philosophy to a despairing and debased hedonism, the universal cessation of effort under the certainty that "Tomorrow we die," the four horsemen stalking abroad in this new Apocalypse. And through all a few proud souls would work on amid the universal wreck; a few stern Puritans of science, fighting their battle for a world which would give them little time. A decade of this, a century perhaps, and then the glad tidings that the secret of atomic energy had been traced to its source and the world was out of danger—saved.

Saved for how long? The cycle would only begin anew. For it would become apparent that the world could last only so long as the supply of the one element that would release the energy of the atom; that life was measured in the terms of the mercury it could find. This time, warned perhaps by the earlier experience, there would be less of hysteria and more of regulated effort. Those left alive would be the children of the fearless, who had worked, while the rest only tried to forget the imminent annihilation.

National and racial animosities would be sunk in the common danger. There would be anxious conferences, inventions, until one day some bold genius ventured out on the ways of space in the first cometary car, seeking for a new source of the element that would keep the world. That first car would almost certainly be a failure, doomed to circle forever around the sun as a tiny planet with its dead occupant, or go to smash against some intervening mass.

But there would be successors, going out by ones and twos, a few of whom would come back, racked with pain, broken and disheveled. Some would be burnt to death passing through the atmosphere, some torn in pieces by the operations of mysterious interplanetary forces. And out of their experiences would gradually grow better and better space cars—shooting out from Murashema in the gallant race with time to search for the precious substance. I could picture the lonely men in those cars, like the one before me, gradually discarding shell after shell on their journeys from their island homes, driven from apartment to apartment within them, searching perhaps vainly for some place to land. Many of them would never land at all, would spin forever in the vast loneliness of space, fuelless and dark. Many more would land on strange planets peopled by fearful monsters or filled with noxious gases, or so massive that the very gravitational forces would crush the explorers, before they put foot on land. Only a few, a very few, would ever return, and of those few, fewer still would bring back any encouragement. Does such a future hang before our own world, I wonder? . . . Ashembe was the first, on his own account, to find mercury; and what if our explorers were never to find it?

. . . I shuddered a little.

"Come," Ashembe said, "I am hungry."*

CHAPTER IX

FOUR automobile jacks were Ashembe's means of getting the inner chamber of his cometary car off the ground to place the plates for the base of the next shell beneath it, a system of fine arches carrying the weight of the inner projectile not more than two feet above the base of the outer.

The outer shell was oval in section. A small living chamber about four feet each way and about eight feet high was located in the longer axis of the oval and was partitioned off from the upper section of the projectile. In the large space above (which extended some five or six feet beyond the inner chamber) the fuel was to be carried. From this space a complex series of tubes led down to the base of the inner chamber by way of the narrow space between the shorter axis of the oval and the outside of the inner shell.

Like the inner chamber, the outer was provided with nickel plates at point and base, Ashembe taking the greatest care to fit them to the inner layer of plates. At the very point of the inner projectile a stout duralumin (or some similar metal) column, which spread out into a heavy capital, carried the peak of the outer shell. This much done, Ashembe lined the interior of the new living chambers with atotta as he had the inner ones, and set to work on a third shell.

This was constructed on the same lines as the second, save that its section was circular, thus bringing the whole projectile again to a circular shape, and providing two more chambers of considerable size at the points where the short axis of the oval second chamber had fallen. The tubes leading down from the points of the two outer shells were now carried to the space below the inner chamber, where they were led into an arrangement of valves that cost Ashembe several days' work. When he had finished there was a rod with a key attached, which ran up through every other one of the series of holes he had punched in the base of the inner shell.

"This is the propulsive force of the Shoraru," he explained as I watched him forging one of the delicate little keys. "Pleci is admitted to small chambers underneath, also small amount of hydrogen. Violent reaction ensues, giving propulsive force under mercury ray. The slight additional reaction is obtained by bringing in small amount of fresh pleci to displace that spent in the previous reaction. Entire process is controlled from the central chamber. You comprehend?"

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*It seems proper, at this point, to give the observations of Professor Francis X. McGreevy of the New Jersey State University's Department of Chemistry, to whom this manuscript was submitted, on the nature of Ashembe's mercury tube and "pleci ray." The pleci ray, to be sure, is explained later on by Mr. Schierstedt, but in a way totally inadequate, from the scientific point of view.

"According to J. H. Jeans," Professor McGreevy writes, "there is only one force adequate to explain the immense amount of energy expended in solar (and stellar) radiation. This is the total annihilation of matter. He points out that if the energy of the stars were supplied from any other source, they would long since have burned out; our own sun would long since have become a blackened cinder (from the amount of time we know the earth to have been circling around it) if its energy had any other source. He gives the striking illustration of the several thousand tons of coal consumed in driving an ocean liner across the Atlantic; whereas the total annihilation of the matter contained in only a few grammes of coal would be sufficient to drive the same ship several times around the world.

"It seems, from the evidence presented in the manuscript, that the Murashemans have discovered some means of annihilating matter in the mercury tube. This would explain the immense supplies of energy they derive from a small amount of mercury; it would also explain why they must continually search through the universe for more supplies of this metal, as their stocks become exhausted. I am aware that Mr. Schierstedt gives his opinion that the mercury is used as a catalytic agent. This must be inaccurate; one is to remember that Mr. Schierstedt time and again emphasizes the fact that he is not a chemist and has small understanding of chemical processes.

"As to the pleci ray; this seems to me to present no particular difficulties. Since the discovery that hydrogen is a mixture (composed of two substances, called for convenience, orthohydrogen and parahydrogen) there has been no difficulty in recognizing the existence of chemical elements of less atomic weight than 1. That one of these elements possesses immense stores of energy under the influence of the annihilating mercury ray is perfectly logical."

Ashembe exhibited a dexterity in modeling the parts of his machine at which I never ceased to marvel, but by the time he had begun work on a third outer shell (like the first, oval in shape) it was already November and threatening days and frosty nights warned us that winter was at hand. As for myself, I was unremittingly busy aiding Ashembe and, with Stanbro's somewhat unwilling help, trying to transform a summer shack into a house, which would be habitable throughout an Adirondack winter. The school teacher had become an almost unbearable barnacle, tolerated only for the reason that his loose tongue might do so much harm if we turned him off altogether. He was unwilling to do anything but question Ashembe, and his first success had encouraged him to ask for further and further loans of money. I hold it somewhat against myself that I usually acceded to these requests. I am, I suppose, an easy mark, but he was evidently in financial distress (what did he spend it for anyway? I have no idea) and I regarded the loans somewhat in the light of payment for services rendered. Perhaps if I had not kept on, or better, refused him the first time. . . .

It was one evening during the early part of December, as I recall it, that the first event in the series that broke the calm serenity of our plans occurred. Ashembe, who had nearly finished the third outer shell, was seated by the fire reading Stratton's "Astronomical Physics," while I was absorbed in a report from the office. The tea-kettle sang on the stove and it was one of those chill, purring evenings that is so pleasant indoors or out. Everything seemed wholly peaceful and happy, when I was suddenly startled by a whoop from our interplanetary visitor.

"Oh, hell!" he cried, leaping from his chair.

"For Heaven's sake, what's the matter?" I asked.

"Pleci! Oh, hell! It is coronium. It does not exist in the terrestrial sphere! Oh, hell! Parabolic velocity is too high! Incredible! What to do!" He began to pace the floor in sudden and uncontrollable excitement.

"Can't you use—" I began, but he waved me to silence, and without another word seized a sheet of paper and a pencil, and seating himself at the table, began to make mathematical calculations. I could not draw him from his silent labors, so I went to bed.

I emerged from the bunk room in the morning to find a worn and drawn Ashembe still seated by a table now covered with papers bearing the queer symbols of his mathematics. He looked up wanly as I entered.

"Ah, the dawn!" he declared. "Give me some of your slightly stimulating brown liquid. This is very important."

"What's the trouble?" I asked.

"Pleci. The propulsive force of cometary cars depends upon pleci. But I find in your book (he laid his hand on it) what previously terrified my vitals. Pleci is the same as coronium. It has been identified by your scientists in your sun, but does not exist on this globe, being of too high parabolic velocity to be retained by the earth. Upon Murashema it is in combination, but I do not understand therefore not here. Do you comprehend?"

"No," I answered with perfect truth.

"Attend, fool. Molecules of any gas are continually flying about in all directions, colliding and rebounding. You understand? Velocities with which molecules fly about are less for the heavy gases, also less at lower temperatures. Velocities are the higher for lighter gases, also for gases at higher temperatures. Each planet exercises certain attraction on gases, due to gravitation. If velocity of gas molecules is higher than attraction of planet, it will seep off into space one molecule at a time because of velocity. Do you comprehend?"

"Ye-es."

"Oh, hell. Now velocity at which this earth lets go of gases is 11.188 kilometers per second in your measurement. Such is called the parabolic velocity. Velocity of hydrogen, which is lightest gas retained, is about 2. Therefore your earth retains hydrogen, except for small quantity which escapes out from upper atmosphere in extreme warm spots where heat of sun raises temperature and also velocity of hydrogen. But pleci—coronium—has velocity of 11.104. Therefore, when a little heat is applied to the same, it bounces out of earth away. Consequential, even if you once had much coronium here, all is now disappeared. But coronium is hitherto necessary to propulsion of cometary car, or how shall I return to Murashema. Therefore, I calculate whether any other substance can be subjected to required atomic vibrations to carry the cometary car to another planet, perchance to find coronium. You comprehend?"

"I think so," I said. "It's like this, isn't it? The earth is so small that gravity has no effect on coronium on it. In other words, if you had coronium here, it would fly right off the earth, making a big disturbance as it went. Am I right? But you need coronium for your cometary car and you want something else nearly as light. So you're going to try making something else."

"That is well-nigh exact," said Ashembe, "except big disturbance upon departure of coronium. No such results would appertain. You will make the scientist some day. I advise continued study."

"Have you found anything else that will do?" I asked, ignoring the touch of sarcasm.

He shrugged. "Perchance helium can be made to perform the necessary function. I have not completed computations in this regard. But send to your friend of New York for one small cylinder of helium and we will make the attempt.

I began to fill the coffee pot. A thought occurred to me.

"Look here," I said. "How is it if you came from a planet about the size of this one that you have coronium there and we do not?"

"That I am not quite sure," said Ashembe, "but many good reasons are that partially explain. Coronium exists in Murashema (he touched his forehead with the little gesture of reverence that always accompanied any reference to his home) in combination with other elements. The combination must have taken place at high temperatures not now existing, at period when our sun was a nova. You understand?"

"I do not," I smiled.

"Never mind. I will demonstrate at future date. Further, Murashema is nearer to our sun than earth is to yours. Coronium exists very large in upper atmosphere of the sun in region called chromosphere. Large disturbances in the sun, accompanied by sun spots, cause small portions of it to rise very far out in very rarefied condition. Some of this it is possible to collect from Murashema, not from earth, because of greater distance of your planet from the sun."

Well, that was that. Ashembe spent the day as he had the night—in making computations, and after his one brief outburst of speech, was not to be drawn from a busy silence. Seeing there was nothing more to be got from him, I hauled out the canoe and went in to Fort Ann. And there, to climax our chapter of misadventure, I found an ominous letter from my friend.

". . . You know, I've been taking the gold to the U. S. Assay office," he wrote. "They accept it there and pay you for it in an equal weight of coin, with no questions asked. But I think they're beginning to suspect I'm some sort of a criminal. The clerks there are always polite, but they have taken to quizzing me—oh, very unofficially, of course, and in the gentlest manner possible. No questions asked, you understand, but any information is very welcome. I wouldn't have noticed it even then, probably, but yesterday afternoon, when I made my usual deposit, I noticed a fat johnny with big feet, leaning over my shoulder. He followed me out, and though I lost sight of him later, I'm sure I saw the same chap standing across the street in front of the house this morning, gazing at the milk on the doorstep as though he thought it contained gold in solution. You couldn't miss the size of those feet—why do all policemen wear size 14? That doesn't mean that I want you to quit sending me the root of all evil or anything. But, let 'em look us up, say I ; it's all on the level. Only it's rather curious and might become annoying."

CHAPTER X

GETTING a cylinder of helium, or a supply of it in any other form, Merrick wrote me, was a troublesome job. The government, it appears, controls the entire supply of this gas, and is loath to let go of it for any purpose. Moreover, Merrick was finding the investigation of his supply of gold more and more pressed home. "Detectives pop at me from every corner and peek around the edge of my bookcase o' nights," he wrote to me in serio-comic despair. He must have led them a merry dance. It fell in with his sense of humor to suddenly whisper "Sssh" to people with whom he was talking, to change taxis and elevators in frantic chases across town, and otherwise to conduct himself as though he were a criminal of the most desperate dye. Perhaps it was lucky he did, in the light of what happened afterward—but on the other hand, his antics might equally well have been the reason why they came to Joyous Gard.

But at all events, it was deep in December, the snow lay thick on the ground, and Ashembe had completed a fourth and final outer shell to the cometary car, with all its complex arrangement of tubes, valves and sheathing, before Merrick reported victory in the helium hunt, and a small iron cylinder of the precious gas was delivered at Fort Ann. By this time the lake was nearly impassable for a canoe, so congested it was with slush and ice, and every shipment of materials meant a long trek through the woods around the shore with a heavy load packed on one's back. I was glad the cylinder was no larger. Fortunately five months in the woods had made me hard as nails.

Meanwhile Ashembe, with some help from Stanbro, was engaged on the interior fittings of his space ship. His first care had been to make three complete suits of flexible atotta, covering his hands with gloves and his head with a crude helmet we managed to botch together out of cloth, and having Stanbro paint the hot liquid over his clothes. A narrow space was left in front to be closed with some kind of fastener, and after the suit had been finished, this was fitted with a tongue like that of a shoe, also of atotta. When complete, the outfit looked like those worn by Arctic explorers, save that it was of the heavy, soft atotta instead of fur. One stepped into it, closed the front and closed down the hood over the face.

For the eyes, Ashembe made a pair of lenses, refining his own glasses in the crucible, and inside the suit, just where the chin leaves a little notch above the chest, he fitted a respirator, connected with a small vessel which was filled with liquid air and provided with a heating arrangement to warm it as it emerged from the vessel.

"Suppose," he explained the process, "I should land on a planet with no oxygen in the atmosphere or with no atmosphere at all. This same suit will enable me to manœuvre about on the ground. Atotta gives insulation against cold and prevents escape of the vital atmosphere."

The suits, when made, were stored in the central chamber of the space car in three of the aluminum racks that had interested me when they were being installed. The car itself, complete as to its outward semblance, now towered above the trees in the clearing, its huge metallic flanks reflecting the frosty light of winter, filling the whole of the open space at the base and rising up to a height of something over thirty feet. Inside one crawled through the various chambers, each lighted by a soft glow from a piece of quartz which Ashembe had exposed to his mercury tube for a time and then installed under a glass hood.

He was hard at work now on the fittings for the interior chamber. A hole was bored down through the centers of the columns connecting the peaks of the shells and another valve like those at the base was installed where the hole debouched into the central chamber. "To check the momentum of the Shoraru upon arrival at the desirable destination," he explained. Just below it, where the nickel plates had been set into the point of the projectile, a small telescope carefully insulated with atotta, was placed on a swinging arm. Below this again, and in the upper racks of the outer chambers, Ashembe began installing boxes of thin metal filled with food.

This food he produced himself, using the charcoal I had prepared for him, water, and various chemical reagents, as the raw materials. When he completed his work with each batch, a dun-colored liquid that hardened shortly after being placed in the boxes resulted. At Ashembe's behest, I sampled some of these synthetic provisions. The first lot had a taste not unlike that of a nectarine or peach—sweet and pungent; and it was extraordinarily filling for its bulk. Another lot, if eaten with closed eyes, one could have sworn to be roast beef. But all these foods possessed one characteristic in common. They were all soft and not very "chewey." I began to understand why our visitor had refused our knives and forks on his arrival.

And speaking of the mercury tube, I am reminded that by this time the acetylene heater for running the dynamo had now been long since discarded. From a bag of kitchen salt Ashembe had produced chlorine, which was subjected to the mercury tube, then placed in a cylinder just behind a motor he had constructed, not unlike a small model of a turbine engine. When a key was turned in this apparatus, it became a veritable speed demon—indeed, the first time it was used on the dynamo that piece of earth-born machinery burned out its bearings. "Highly ionized chlorine," going through the process of atomic decomposition into fluorine and oxygen, Ashembe explained his power plant, as he took it apart one day to scrape from the flanges of the interior a dull deposit which he assured me was caused by the action of the nascent fluorine on the interior of the mechanism.*

A stinging, cough-producing odor rose from the machine, and when Ashembe made a duplicate of it for the interior of his Shoraru, he provided it with a hood terminating in a metallic flask "to catch the fluorine emerging," he remarked. "Very bad it is to have fluorine in the atmosphere of cometary cars."

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*Again a reaction not clear in the light of our chemical knowledge. The atomic weight of chlorine is 35 (plus a fraction), that of oxygen 16 and that of fluorine 19. So much is clear. But from what we know of atomic decomposition, the natural process (supposing we had any means of decomposing the chlorine atom, which we have not) would be for the chlorine atom to shoot off a number of alpha and beta particles (radium emanations) and come to rest as an atom of Argon or Carbon, both of which are much more stable elements than either oxygen or fluorine. In other words, there is no precedent whatever in earthly chemistry for this breaking up of an atom into two perfectly complete parts. Moreover, the breaking up of the chlorine atom should absorb, not release energy—but it may be assumed that the reaction of the mercury tube caused this effect.

The big day was that following the one when I dragged into camp in the evening, dead beat and with a cylinder of helium weighing down my shoulders. Ashembe had built what was essentially a model of his space ship, providing it with an upper and a lower chamber and a valve set into the latter. That very evening he put the helium under the rays of the mercury tube, and the first thing he did in the morning was to run it from the cylinder (where it had been replaced following its exposure to the decomposing ray) into the upper part of the small model he had made.

The lower chamber was now filled with some of the liquid hydrogen he had produced after having made the gas by electrolyzing water.

THESE arrangements completed, he lifted a cup of coffee in a toast to the model where it stood, braced between two rocks at the side of the lake, a few feet from the spot where he had emerged from the car that had brought him.

"The great moment has arrived," he declared. "Whether I return to Murashema or remain citizen of this interesting but backward earth, will now become evident." With a flourish he drained the coffee, then bent down and turned the key at the base of the model.

For a moment nothing at all happened. I glanced at Ashembe, saw his face flash from anticipation to disappointment, and in that instant there was a reaction —a gentle hiss from the model. I turned back—it was rocking slightly—and then with a rumbling explosion of sound it rose like a rocket, gained speed, swerved a trifle, and went winging slantwise up, like a bullet, leaving not even a trail of smoke to mark its progress.

"Success!" shouted Ashembe, capering with delight, and then, "but not altogether success. I must make the other test."

"The other test" proved a laboratory one, and I went off to examine the line of traps I had set out. There's always a chance of catching a few bunnies for the pot, or a valuable, snarling fox, in these Adirondacks, still as wild as in Champlain's day. When I got back, I found Ashembe at work in the kitchen-laboratory, with Stanbro watching.

"How did it come out?" I inquired, tossing on the table the one rabbit I had harvested.

"Moderate success," he answered. "The power contained in helium is insufficient for me to reach Murashema without enlarging the Shoraru to unwieldy and heretofore unuseful dimensions. Nevertheless, it will be complete to carry me beyond the gravitational attraction of this earth and to one of the planets nearer your star, whereupon I trust coronium will be available due to the nearness of the sun to these planets. In the last emergency I can always return to this orb and rebuild."

"Wh-at?" gurgled Stanbro, his expression plainly indicating his astonishment at this calm statement of an intent to visit the wilds of interplanetary space. I had avoided mentioning that my visitor was from another planet, not so much from any fear of what Stanbro would do as to get rid of the boresome necessity of explaining; now the oversight came back to haunt me.

But I made a quick recovery. "Oh, he's kidding you," I said in my best off-hand manner. "He's been testing the telescope with the idea of making spectroscopic observations, and he doesn't express himself quite clearly, that's all."

The school-teacher swallowed a couple of times (that moving adam's apple!) and gazed at me with a dazed air of semi-conviction. I wish I had realized even then the necessity of explaining. Unless an ass like that understands clearly what everything is about, he pries and pries into your most intimate secrets—and more often than not comes out with a totally wrong and most damaging answer. I ought to have known that by making a mystery I was only giving ground for his imagination to work on.

That night a big snowstorm came down on the wings of a tearing northwest wind and we were winter-bound. For a whole week there was no possible chance of getting as far as Fort Ann to send off a letter for more helium; Stanbro's visits ceased, and on the last day of the week, we actually began to run short of provisions. The only compensation in it was that good thick ice formed right across the lake and I could trot out a hand-sledge with plates, or a pair of skis I had been wise enough to provide myself with, and make the trip to Fort Ann for more provisions in a comparatively short time.

To Ashembe the bad weather made no difference. He had been working on the interior fittings of his craft and he merely continued to work on them. It was liquid hydrogen now—he was using water from the lake for electrolysis, liquefying the hydrogen that resulted and storing it in cylinders in the aluminum racks with which the whole interior of the car was lined. The cylinders in which he stored it were of his own manufacture, lined within and without with the heat-insulating atotta.

In the racks also went a smaller number of cylinders of liquid air, each fitted with the same tiny heating apparatus he had installed in the suits. But the most curious of the supplies, he did not place in the car at all. It consisted of a connecting series of tubes underneath a tray on which a kind of green jelly was exposed.

"This is a chlorophyllic substance," Ashembe told me, as he arranged a bank of a dozen or more of these trays behind the kitchen stove. "Chlorophyll is substance that causes leaves to absorb carbon dioxide and give off oxygen. These things do the work of many plants and keep atmosphere in the cometary car forever pure for breathing. The action is chemical with delicate catalyzers. But the same must be in constant use or the chemical action will stop and the apparatus decay. Therefore I keep them here where there is plentiful supply of carbon dioxide."

CHAPTER XI

I WAS thinking of the completeness and efficiency of Ashembe's arrangements for navigating space and how great an advance over our own somewhat stumbling science they represented, as I made my way across the white-sheathed lake, the snow creaking sharply under my skis. Soon he would be on his way again and we would have missed opportunities for knowledge that would almost certainly change our whole civilization. Perhaps Merrick and I had been wrong after all in urging him to withhold his formulae. The practical difficulties of the situation seemed so petty beside the benefits that could be drawn from that wonder-working tube of his.

And yet—those practical difficulties had to be met somehow. Men who set out to do great things for the world (or for themselves) so often go to wreck on just such small conflicts between principle and fact, as that of furnishing Ashembe with his materials and getting him away without telling anyone else about it . . . and our first duty was to him—if there were a question of duty at all in the matter. He had been candid and generous. It would be nothing short of treachery to advise him against his own interest to make his formulas public and undergo the resultant publicity and delay. Still we might get him to leave his formulas behind for such things as atotta and artificial chlorophyll. These alone would help us far. . . .

At the postoffice there was a mass of mail and a few packages. I opened the office mail first to make sure there was nothing requiring urgent attention, secured my supplies and the one or two packages to the sled, dispatched a telegram to Merrick for more helium, stuffed the letters bearing his return address into my pocket for later perusal at Joyous Gard, and set out, anxious not to be caught on the way by night or by storm.

When I did open Merrick's letters, I found ominous news:

"The world's finest police force," he wrote, "seems to be getting excited about me. I told you how I bamboozled the tubby gentleman they sent to watch me? It must have annoyed him. A couple of days later I noticed him at the Assay Office again, and he had a friend with him this time. I thought I'd just give him something to worry about, so I turned around, put on an expression of extreme delight, and grabbed him by the hand.

" 'My dear Howard!' I said. 'When did you get back? I haven't seen you for nearly three days!'

"He was dumfounded. He just stood there limp and let me shake his hand. The other detective was scowling like anything.

" 'I don't believe I've met your friend,' I said, just to keep things going. 'Won't you introduce me? He doesn't seem to like me now, but I can be awfully charming and I think he will be later, too.'

"By that time Tubby's friend, who was a cadaverous, long-eared gent, had got over thinking I was crazy.

" 'Think you're smart, don't you?' he said. 'They want to talk to you down at Headquarters. Better come along with us.'

"I looked as astonished as possible.

" 'Am I under arrest?" I asked.

" 'No,' says Tubby, 'they just—'

" 'Then I won't come,' I said quite amiably. 'So long.'

"Well, I was one up on that round, but they didn't let me stay ahead long. Yesterday, while I was driving down Broadway, one of those police flivvers, loaded with Tubby and his friend (I give you my word it sagged toward Tubby's side) cut in ahead of me out of 38th Street, and I had to turn over to the left side of the street to keep from hitting them. The corner cop promptly blew his whistle and Tubby and the boy friend jumped out of their car and pinched me for violating traffic regulations. It was a put-up job, all right, but that didn't do me any good. When they got me down to Headquarters, they said nothing at all about the traffic pinch, but took me to see a grey-headed oaf named Inspector Grant, and he started pumping me on where I got all the gold.

" 'Not that we doubt that you have a perfectly good explanation,' he told me, 'but there have been a good many jewelry robberies lately, and we think you may have received some of the proceeds in a roundabout manner . . . as a perfectly innocent party, of course.'

"I told him it was none of his business where I got it, and threw a line about legal complications and suits for false arrest, and he quieted down. There isn't anything they can do about it, but they'll probably check up on me closer than ever and it's quite on the cards that they'll find I'm getting it by mail from you. In that case, you may have them up there any time. Better tell Ashembe to be careful, or even to stop making gold for a while. He's paid for all the stuff sent so far, and some over."

This would never do. Again I cursed the practical difficulties of our situation, for if the New York police got to meddling with the affair, it would take just long enough for them to get back to the city for the whole story to get out of the bag. Ashembe would have to explain; we would be inundated with reporters, photographers, trained seals and scientists, and every delay meant that much less chance of finishing the job.

Now, all the interference and annoyance we had feared as the result of publicity would come upon us. "Sweet are the uses of publicity," but not when you're trying to do something in a hurry.

I laid the whole case before Ashembe, explaining to the best of my ability the police system which made it necessary for officers to check up on any supply of the precious metals appearing in unusual quantity, and he agreed to stop sending gold for the time being. "How if I manufacture instead other objects of value?" he asked, anxious to do something for us. "Silver, or the crystalline jewels persons of your planet do treasure?"

"Silver isn't worth enough," I said, "but can you make jewels? Surely, though, you ought to be able to make them. Can you make diamonds?"

"What is diamond? Oh, crystallized carbon, I remember. Certainly, I can make." And he set to work to make diamonds as calmly as he had gold.

BUT from this day onward something of the idyllic contest with which I had stayed in the woods began to be lost. I was forever expecting men in the blue of the New York police to come popping out of the forest asking, "What in hell are you doing here?" Things seemed hurried, strained. Stanbro's visits were more infrequent, and though this was clearly due to the weather, I felt vaguely uneasy about it. At Fort Ann there was a difference, too. The good-humored tolerance with which the country folk ordinarily treat a city man had become something more sour and sullen. Talk ceased around the stove in the grocery store when I came in, and the mustachioed functionary of the postoffice no longer commented on the weather. It was as though I were engaged in some criminal enterprise, knowledge of which had become public property. And Merrick had difficulties, too.

In spite of these troubles, two more cylinders of helium duly arrived at the railroad station just after Christmas, together with a note saying he was sending more at New Year.

We made a little holiday of Christmas at Joyous Gard. I had explained to Ashembe that it was our great religious festival, and though I fear he misunderstood the purpose of it (he called it an interesting survival of "heliocentric solar worship marking the turn of the year") he fell into the spirit of the occasion with an avidity which surprised me.

"In Murashema," he informed me, "we also have holidays, recreational periods having been determined upon as necessary at certain times."

Upon a small spruce we rigged some lights; I had procured the material for a plum pudding in the village, and Ashembe's contribution was a game which he described as "played during recreational periods by my people." As near as I could make out, it was a kind of three-dimensional chess, played in a cube ten squares long on each side, and made of some transparent material that allowed one to perceive the pieces within. Each floor of this arrangement was fitted with a hinge at the back and a little clasp at the front so that in moving a piece, one simply released the clasp at the desired level and swung the whole top of the cube back. The pieces moved in all three dimensions.[*]

I am no world-beater at chess, although I play a fairly strong game, and it was perhaps only natural that Ashembe should prove so much my superior at this more virulent form of it.

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[*] It is interesting to recall that the players of the Marshall Chess Club of New York City have tried out a form of three-dimensional chess since Capablanca's demonstration that the old two-dimensional chess is becoming obsolete through lacking in complication for modern minds. The earthly form of three-dimensional chess was played on several boards simultaneously, these boards being only imagined as one above the other; and the total dimensions of the cube used were four squares by eight by eight. It would require a super-mathematician to play the game Schierstedt describes.

The holiday over, Ashembe went to work on his machine again. It did not take him more than a couple of days to pass the helium we had on hand through the emanations from the mercury tube and store it in the point of the shell, and then he went to work on a small generator which was to furnish the current for the mercury tube he proposed to carry in the car, as the motor he had already made was to furnish power.

Meanwhile, I made a couple of trips to town, and mailed Merrick some of Ashembe's diamonds. Not indeed, his first effort—I had perhaps unwisely told the interplanetary traveler that the larger the stone, the more it was worth, and he had naively produced a huge rock all of six inches in diameter and of the purest lustre—quite enough to give us publicity for the rest of our lives. I buried the monster with some care, back in the woods. There's a fine shock awaiting the man who some day digs it out.

Even on the smaller stones that followed this experimental effort Merrick reported difficulties. Dealers, he said, were reluctant to handle such large and perfect diamonds without being sure of the pedigrees, and he was finally forced to consent to an arrangement by which they were to sell them for him on commission. The third shipment of helium came through with a note promising a fourth, and the days wheeled by to the middle of January.

CHAPTER XII

THEN events resolved themselves rapidly and in an unexpected manner. Stanbro was hanging around again, following the Christmas holidays; though what he was gaining by his visits was difficult to see, for Ashembe was engaged in operations far above his power of comprehension and his repeated requests for loans had irritated me to such a degree that I was barely polite.

One night he buttonholed me while we were alone in the shack. The usual thing—"Christmas expenditures had left me somewhat short. Could you, Mr. Schierstedt, loan me a small amount till next pay day?"

As it happened, I had been to the village that day and spent all my ready cash. "I'm afraid I can't," I said, somewhat shortly.

"That's too bad. I had hoped—the emergency in which I find myself is really acute. I have some bills which must be met at once. I had hoped you could spare a small amount—say ten dollars, until—"

"No!" I declared, irritated by his insistence. "I can't spare ten dollars or any other amount. I haven't got it, I tell you."

"But really with all the gold you have about here.... You perhaps don't realize how acutely embarrassed I am for money.... So far I have refrained from writing or saying anything about the work you have been carrying on here, although I might have made a great deal of money out of the description of some of your remarkable experiments, and I consider that I have made great sacrifices, both in my own time and in the income I might otherwise have had. I'm not asking you to give me money, only for a loan. And I'm afraid that the necessity of immediate funds will now force me to sell a story about the experiments, unless. . . ."

He babbled on, but I was no longer listening. My feelings were more of amazement (that such a lever should be used on me!) than anger, as I turned on him. "Why, you dirty little blackmailer!" I said, "Get out of here! Go on, sell anything you want to."

"I didn't mean—" he began, his adam's apple moving, but my temper was up as the full realization of his words struck me.

"Get out of here!" I shouted again and accompanied the words with a vigorous kick which, fortunately for my feelings, did not altogether miss its objective. "Beat it!"

"All right, I will get out," he said, "but I know what you're up to—" he edged away as I stepped forward, "you and your foreigner. You're counterfeiting, and you needn't think I'll keep still about it, either."

I started after him, but he had a lead and longer legs and I kept up the pursuit only far enough to give him a scare. But I was more than a little depressed as I returned to the shack. If this jackfool were to hunt up somebody and spin a long tale about counterfeiting (and how he would embroider it!) he would bring down on us all the unwelcome publicity we were trying to avoid. And there was no possible doubt but that the authorities, with their usual intelligence at rooting out trifles, would connect up Merrick's sales of raw gold and the counterfeiting story. Intervention was certain. And then?

I may remark parenthetically that I never did find out what Stanbro did with all the money I had loaned him. One time and another it must have amounted to a couple of hundred dollars, if not more—all in small driblets. Did he play the races? the market? keep a mistress? I can picture him with none of these sociable vices. And yet—what did he do with it?*

Clearly the best thing to be done was to get Ashembe away before the police or other investigators came down on us. I laid the case before him; he agreed; and though doubtful of helium as a source of power and not entirely satisfied with the supply of it he had on hand, he began next morning to carry some of his supplies to the car and put the finishing touches on it, while I went in to Fort Ann to send off a final letter to Merrick, cancelling all orders for supplies.

However, neither of us had counted on the speed with which those normally elephantine gentlemen, the police, can move at times. As I stepped out of the postoffice after mailing the letter, I almost ran into old Marvin Pritchard, who combined the functions of village shoemaker and village constable. "Oh, Mr. Schierstedt," he said. (My heart gave a sudden jump in my throat. Stanbro must have reached him!)

"Yes?" I said, bending down to strap on my ski.

"Can you come over to my place for a minute. There's something I want to ask you."

"What is it?" I asked, tightening the second strap and standing up. "I can't spare much time."

"Well, I wouldn't like to say right here, now. It's about a complaint I got."

"I'm in rather a hurry. Suppose we go into it tomorrow. I'll be in," I temporized, taking a step away from him. Another man was idling out of the postoffice.

"'Fraid it won't wait, young man. Gov'ment business. Come—" I let him get no further, for in a flash of realization I perceived he was going to be obstinate. I turned suddenly and with both hands pushed—not struck him—violently in the chest. Over he went, into the high-piled soft snow, head and shoulders going right out of sight, feet waving grotesquely, and as the other man shouted, I started, heading for the back of the houses, where the slope away from the town would give my skis a decided advantage over the pursuit in the deep snow.

"Stop!" I heard behind me as I cleared the edge of the house. "Stop! You're under arrest!" The end of the fence, sticking a post a few inches through the drift, and the crest of the hill. Would he shoot? More shouts behind. I was over the crest, and my skis began to gain a momentum of their own on the downslant. I dared not risk a long look back, but cast a quick glance over one shoulder and caught a flashing glimpse of the cobbler-constable just floundering through the snow round the corner of the house, and other bobbing heads behind him. A window was flung up with a screech. *Would* they shoot? Down the hill, with a long, flat stretch before me, gaining speed. Thank heaven the snow was deep enough so that I didn't have to worry about hitting fences.

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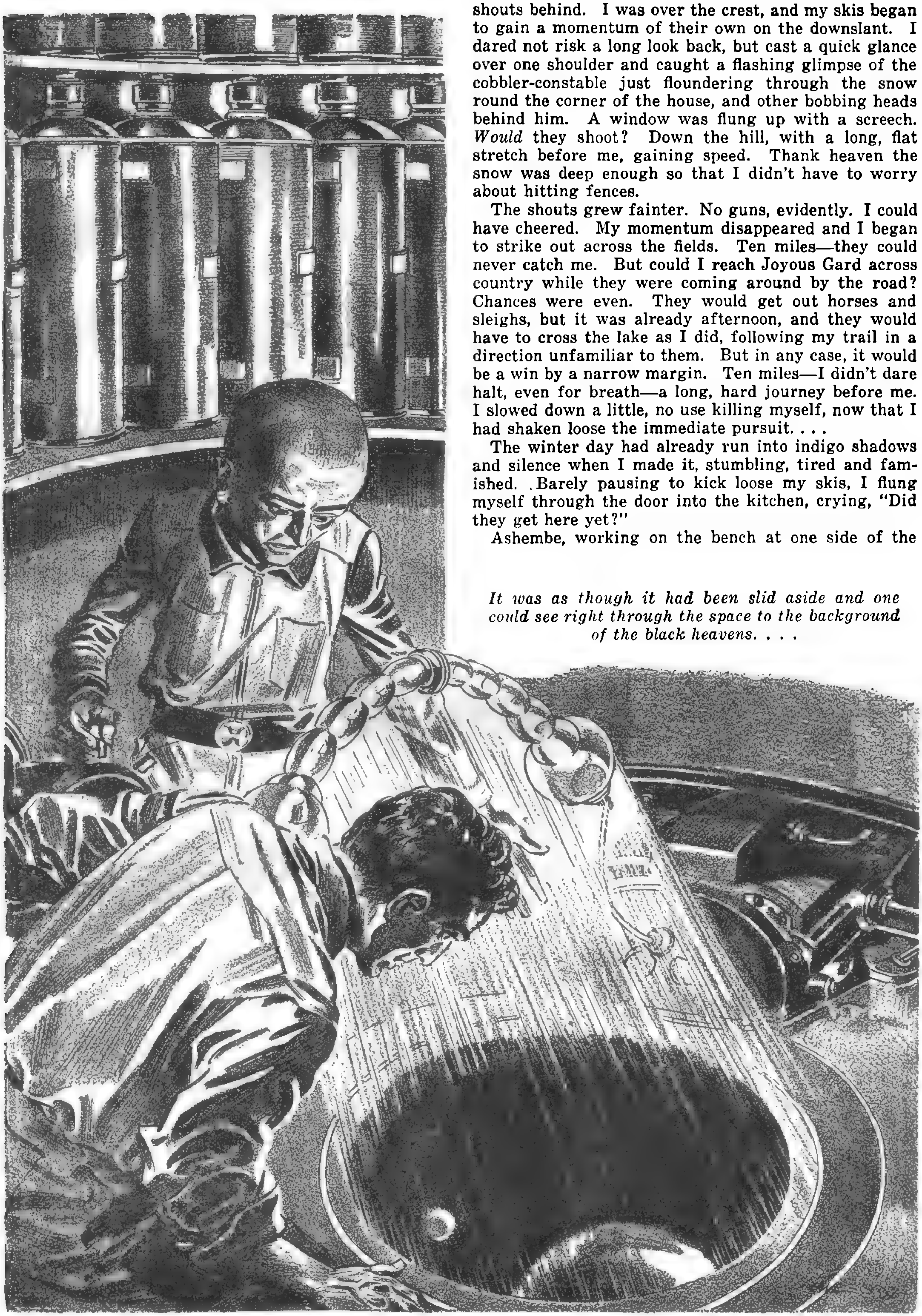
*The school records of Warren County show there was a teacher named DeFred Stanbro in Tutwiller township at about this time. He taught the school there for only one year. No other record of his movements or present whereabouts can be located.

The shouts grew fainter. No guns, evidently. I could have cheered. My momentum disappeared and I began to strike out across the fields. Ten miles—they could never catch me. But could I reach Joyous Gard across country while they were coming around by the road? Chances were even. They would get out horses and sleighs, but it was already afternoon, and they would have to cross the lake as I did, following my trail in a direction unfamiliar to them. But in any case, it would be a win by a narrow margin. Ten miles—I didn't dare halt, even for breath—a long, hard journey before me. I slowed down a little, no use killing myself, now that I had shaken loose the immediate pursuit. . . .

The winter day had already run into indigo shadows and silence when I made it, stumbling, tired and famished. Barely pausing to kick loose my skis, I flung myself through the door into the kitchen, crying, "Did they get here yet?"

Ashembe, working on the bench at one side of the



It was as though it had been slid aside and one could see right through the space to the background of the black heavens. . . .

room, looked up in cool astonishment. "They are persons who perform a visit?" he inquired.

"Yes," I snapped. "The police. They're on their way. Here any minute now. You can't wait ten minutes. You must go right away, or we'll have trouble."

He gazed at me for a minute, doubtless meditating on the curiosity of a world where it is necessary for science to evade the law, and then, with wordless efficiency, began to gather up his materials and carry them to the space ship. Trembling with exhaustion and excitement, I sank into a chair, but only for a moment. Ashembe had carried only a portion of his materials out. The chlorophyll trays, for instance, were still in their place behind the stove. He would need all the help I could give him. Fortunately, the coffee-pot was full, and a long drink of the steaming liquid made a new man of me. I began to help my guest carry his impedimenta to the clearing where the cometary car stood, pointed toward the heavens like a projectile for some monstrous piece of artillery. We formed a division of labor in which my part was to bring things to Ashembe, who met me at the door of the space ship and carried them back through the tortuous rooms to be stored in the center.

I have no very clear memory of how many trips I accomplished up the path beaten in the snow under the silent stars. My weariness had left me and I was febrile with excitement. It was like a dream; the shack, the toil up the path among the clutching branches, and Ashembe at the end, meeting me in the moonlike radiance that flowed from the interior of the car and carrying things back in with swift movements, like an efficient machine.

It had to end some time, of course. As I came down the path on one of my return trips to the shack, I heard the crunch of feet in the snow, and saw the glow of a flashlight snapped on and heard voices.

"Nobody here," said someone. "Try around the back, Ed."

I stopped, listening. The thought flashed through my mind that I could hide out for at least one night in the woods and make for Whitehall and the railroad there the next day. But—

"Here's a path," called a voice. "Maybe they've gone this way. They haven't gone long. The lights are still on." Abruptly the flashlight ran up the path toward me, and I moved quickly to one side to duck it—but not quickly enough. The light caught my arm for a second, held it, and then switched full into my face. A yell.

"Stop! Hands up! This way, Jerry, I see him!"

I turned toward the car, running. "Stop!" "Where is he?" I heard behind. Then, bang! It sounded like a cannon in the stillness and past my head there was the vicious wheen of a bullet.

The door of the car was right ahead, with Ashembe's bent form outlined against the interior light. Without even thinking, I dived for it; there was another report as I dived and a bullet smacked against the steely side of the car. I was inside, striking my knee a savage blow as I went through the low opening. Footsteps sounded behind me, more shouts and a clang of metal as Ashembe lifted the door to slide it into place. I writhed to hands and knees, turned and saw that some one had gripped the door from outside and was trying to keep Ashembe from closing it, but even as I reached out to help him, my visitor let go his hold, fumbled at his belt and produced the destructive flash.

"No!" I cried, but too late. The beam of intense violet radiance leaped from the screen, striking the bent figure on the outside fairly in the middle. I heard a low "Augh!" of agony and the figure collapsed in the snow as the door slid into place with a clang.

Without even a glance at me, Ashembe produced the welding flash and began to weld the edges of the door indissolubly into place. The realization that I was a prisoner in the cometary car and an accessory to a murder, suddenly struck me, and all at once I felt the accumulated muscular and nervous fatigue of the day. A whirling universe of sparks danced before my eyes, and I lost consciousness.

CHAPTER XIII

MY first sensation was one of extreme annoyance that it should be morning before I had half the sleep I wanted. Dreamily I turned over to gather the covers about me for that last delightful five minutes of doze before clambering out into a cold world. My hands met neither blanket nor sheet and, startled into consciousness, I looked up to see above me not the beams of the shack but the tapering, tan-colored interior of the Shoraru, lined with its rows of racks and apparatus. Then I remembered.

I sat up with difficulty. I was in the central chamber of the car, on the floor, and beside me was Ashembe, locking tight the joints of the interior door and closing the cracks with atotta. A dull tapping sound, like the racket of a distant woodpecker, filled the place.

"Hello!" I remarked rather fatuously. (I could think of nothing else to say.)

"You are revivified," he said, turning from his task with a smile. "I am happy. You do not objection to journeying with me? I can return you here after a trip to your interior planets."

I became aware of the pain in my knee, and memory rushed in upon me. "Why, yes," I said, rubbing the injured member. "There's nothing else for me to do. I'm afraid you killed that policeman, and they'd probably hang me if I went back now."

"Hang you? Oh, you signify execution. But you did not do it."

"I know," I said. "But I was present. That makes me an accessory or something. What's that noise?"

"Your police anxious to enter herein. However, no matter. We depart upon the instant."

I realized that the police were trying to batter down the outer door of the car — that massive steel and iridium door. Ashembe turned to the control keys of the car. Then—"But won't the explosion when you start injure some of them?" I asked.

He looked up in perfectly genuine surprise. "Certainly," he said. "But no matter of that. They would do us harm." And this extraordinary individual, who would not give us information, unless we promised to altruistically surrender it to the whole world, calmly turned the keys that would very likely blow half a dozen men to bits.

Nothing happened. I opened the eyes I had shut tight in anticipation of a shock. The hammering on the distant periphery of the car did not even stop. There was only a gentle hissing. It rose to a rattle, and then, just as I was about to speak, a tremendous explosion burst that sent me carroming off the side wall of the chamber to the floor of the car. We were off.

After that first burst of sound, however, there was neither noise nor perceptible motion. I raised myself somewhat cautiously to my hands and knees, then to my feet, and looked around. Everything in the car was the same as before; the soft daylight radiance from Ashembe's quartz flooded the interior of the narrow chamber; the various pieces of apparatus and metal cylinders of liquefied gases stood firmly in their racks. Below them others held materials that remained in the cases sent from New York, removed to the car in that state during our last hasty moments of flight.

Ashembe had seated himself cross-legged on the floor and was gazing intently into the workings of one of his mercury motors, which apparently had something wrong with it. Everything was perfectly serene, almost monotonously so, as though instead of sitting in a cometary car bound across those vast wildernesses of space, which even light takes centuries to cross, we might have been back in the shack. In the shack, but for the shape of the room and—a thought struck me suddenly.

"Why, how can you tell where we're going?" I asked. "There aren't any windows."

Ashembe smiled up at me. "Gramercy," he said, "I forget you are a novice. Perceive." He fumbled a minute with keys, making adjustments. A little ring-shaped heater around the hole at the center of the base of the car, the one he had windowed with nickel, sprang into activity. There was a snap as though a shutter somewhere had slid back, and simultaneously one of the mercury tubes, placed above and to one side of the nickel plate, began to play a stream of radiance upon it.

Under the impact of the ray, the gleaming metal lost its lustre, turned to a bluish, milky plate, became translucent and then transparent. It was as though it had been slid aside and one could see right through the space to the background of the black heavens picked out with the blazing points of stars. I gave a cry of surprise.

"Simple," said Ashembe in answer to my unspoken query. "The other side of the nickel has been sensitized—like the thing your scientists call the 'photoglow' tube. It responds perfectly to all change in intensity of light thrown on it. Such changes are transmitted through reflection to the tube within which throws them on nickel plate on inside. Much like periscope in your submarine ships. You comprehend?"

I didn't. "Why not use glass?" I asked.

"Glass transmits harmful emanations. While in atmosphere of planet, said atmosphere is sufficient insulation against emanatory radiation of type of you call 'cosmic ray,' which are dangerous to life, like unto your X-rays. Glass is not opaque to them, but metals are. Also there is question of heat. We would be overwarmed by the effect of your sun if glass were used, since we have no atmospheric insulation. Ah, you are enchanted by the vista."

I was; it was the most magnificent panorama ever beheld by the eye of man. I saw it as though through an enormous porthole. (My conjecture that the nickel plate was lens-shaped for a wider field of vision was later confirmed by Ashembe.)* Around the edge of the circular opening, on every side a dancing trail of sparks flashed off and were extinguished in the velvet black of interstellar space—a trail of fire from our car. (And here again I must insert a parenthetical remark at the risk of irritating the reader—these were not, as I originally imagined, blazing sparks, since there was no atmosphere there could, of course, be no combustion. They were rather in the nature of single electrons or ions, cast off by the fierce electro-chemical reaction going on within our motors and glowing with a light of their own.)

WITHIN this circle of sparks the stars stood out bright and clear on the background of black, shining not with the twinkling light they have as seen from the earth, but with a steady, strong radiance, like distant lamps. At the upper part of the circle was one redder than the rest, larger and dimmer—perceptibly a disc. I took this to be Mars. The moon was nowhere visible, but the earth filled the whole lower half of the picture, and it was the most glorious celestial object I have ever seen.

It was half shrouded in dark, but even the dark part was visible by the blotting out of the innumerable stars against which it stood, and it was ringed nearly round with a radiant ring where the sun, below and on one side, was reflected back from the upper reaches of the atmosphere. The line where the western coast of North America dipped under the Pacific was still illumined and the continent's edge was visible against the shimmering blue of the ocean as a yellowish-green mass. Further down, around the line of the equator, a white ring of clouds shrouded the masses of land and water, and right in the center of the Pacific was a huge, dazzling spot of pure gold—the reflection of the sun, sent back from the water as from a mirror.

I felt the rub of Ashembe's shoulder against my own. Like me, he was contemplating the view spread before us with rapt attention. "Wonderful, isn't it?" I said.

"Yes," shortly. "We move very slow at present. Your world still has predominating gravitational attraction. If too much speed is made at the present moment, said gravitational attraction would cause serious injury by crushing. But we escape. You do not feel less weighty?"

As he mentioned it, I became more fully conscious of what had been, as it were, poised in the back of my head—a minor irritation. I felt curiously, as he put it, "less weighty." I stood up, and the muscular effort carried me right off my feet, a couple of inches off the floor of the space ship, and I floated gently back as though on wings. It was a singular and not altogether agreeable sensation; a feeling of disembodiment, such as one experiences in those horrible nightmares during which one drifts for hours just above the floor, pursued by some avenging shape. I shuddered a trifle—and the motion propelled me several inches across the car. Ashembe laughed.

"This is nothing," he said. "Wait for the moment when we shall arrive beyond the attraction of your sun."

No wonder he had been haggard and racked when he rose out of the waters of Dunderland Lake from the wreck of his first car. . . .

Ashembe watched the earth fading away behind us for a few minutes, made some adjustments here and there, pulled himself upwards to the peak of the projectile along the racks and there turned on the tubes that enabled him to look out through the nickel plates at that point and after a few minutes of observation returned, coming head downward along the racks like a monkey to the floor of the car again. I watched him as he turned off two of the circle of motors at the base and swung the keys of those on the opposite side to their full power, hardly daring to trust myself to motion, fearful of what I would do with my new-found strength in that constricted space.

"I am causing a change in direction," explained my fellow voyager. "We do now escape from predominating attraction of your earth and must change course toward Venus. These motors no longer necessary for progress on so short journey, but we must turn course."

"Why aren't the motors necessary?"

"Absurd not to understand. You are badly taught in schools. We are now free body floating in vacuum, except for small amount of dust, solely under attraction of your sun, except for minor attraction from planets. Consequently, having momentum, we are minor planet of the same and would circulate around it in orbit with amount of speed required on leaving limit of earthly attraction. Such orbit would not bring us to Venus.

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*He apparently means a fish-eye lens. Schierstedt's lack of scientific knowledge throughout obscures details that might be both interesting and useful. In this same paragraph he speaks of "single electrons or ions," which, of course, are not at all the same thing; and neither does the casting of single electrons or ions fit in with any rational theory of the source of power of the car.

Consequently, having been unable to leave your earth at moment which would bring our course to intersect that planet, we must change direction."

"Why not just turn off all motors but the one on the opposite side from the direction you want to go? Wouldn't it save fuel?"

"Because if I do this, it would give us rotation only and we spin forever around your sun as a minor planet." A shadow crossed his face. "Such was the unhappy case of early explorers from Murashema. Three or four of them now circle forever around our sun. So I merely turn off the motor at one side and then turn those opposite to full power, giving our motion moments in more than one direction and thereby swinging our course in wide hyperbola. You comprehend?"

For a marvel, I did. "How long before we will arrive?" I asked.

From one of his pockets he produced a small calculating machine. "Venus is now approaching inferior conjunction," he said, sliding the parts back and forth. "Due to eccentricity of orbit and fact, we are projected from the earth at point on opposite side from Venus we must go on long hyperbola to get to this planet. . . ." He calculated for a moment. "Distance to be covered totals about 20,000,000 miles in your measure. We cannot go much faster than average speed of forty miles per second or a little more than the speed of your Mercury planet. To go faster would not allow us to slow down on approaching Venus, and we would shoot past into your sun, ending in flaming smoke. . . ." Again a calculation. "About one hundred and thirty-six hours from departure to arrival."

A hundred and thirty-six hours. I pulled my watch out, but being still unfamiliar with the curious effects of the lack of gravity in our exceedingly small planet, tossed it clear over my head, where it bounced gently off a cylinder of liquid hydrogen and returned with the deliberate motion of objects in the slow movies. Ashembe snickered. When I seized it again, it showed half-past eleven by the time of the spot we had left. We had already been gone some three hours and had about five and a half days more to travel before making a landing.

CHAPTER XIV

ONE altogether loses the sense of time, I found, in a place where it is perpetual day, where the warmth is even and the surroundings unendingly the same. On the third day of our journey I forgot to wind my watch, and it was not until some time later—not, indeed, till we left Venus—that I set it going again. When either of us felt like it, we retired to one of the outer chambers, from which the light had been removed, and slept. Again, when we felt like it, we helped ourselves to food from Ashembe's store, though there was very little eaten. The sense of hunger seemed to have been left behind with the earth.

At first I helped Ashembe a little. He had left before his preparations were fairly complete, and there was still some apparatus to be built. He fitted up one of the shells next to the interior chamber as a workshop. There he spent long hours cutting and grinding, working with welding tool and mercury tube to his heart's content. But I early tired of watching operations of whose method and purpose I had no understanding and at which I could be but of small assistance.

In one of the cases which we had tumbled aboard at the last moment I found a few books, but they turned out to be useless, technical things—differential calculus, metallurgy and astronomy—and however deep my boredom, it did not reach the level of reading abstruse volumes on subjects of which I understood nothing.

It was on the second or third day out, I think, that I discovered the deck of cards. They kept me busy for as much as forty-eight hours (and were a blessing thereafter in the long days that followed our visit to Venus) playing endless games of solitaire and trying to work out the probabilities of the game coming out correctly or of a certain card turning up from past performances. But I soon found that the cards responded to no discoverable laws in their permutations, and it was mere boredom to play through ceaseless games to results so chaotic.

Only a limited amount of time could be spent in looking through the nickel screen at the landscape (or should I say space-scape?); it had a depressing sameness once the marvel of the first glance had worn off. Altogether I found time hanging so heavily on my hands that I wondered all voyagers from planet to planet did not go raving mad before arriving. It was just as I had taken up a last desperate attempt to give mind and body something to do (by setting down the words of all the poems I knew and counting up the letters to see which appeared oftenest—to such depths of inanity does boredom reduce even comparatively intelligent persons!)—it was just when I had taken refuge in this last futile form of activity that Ashembe, returning from a trip to the observation screens in the central chamber, found me in one of the outer rooms and announced the near approach of our destination.

I followed him back through the low doors, which had to be entered belly-wise, waiting while he tightened each behind us.* Within the interior chamber the tube and heater around the nickel plates at the peak of the projectile were turned on, and through them the orb of Venus could be clearly seen—now about the same size to the sight as the earth when we had left it. We seemed to be drifting slowly sidewise down toward it, an effect attributable to the fact that the observation screen was not right at the point of the car. I have seen the same effect as I stood at the bow of a ship pulling in to a dock; it seems as though her course is altogether wrong and will take her clear past, until you hear the grinding of her plates against the piles.

The night side of the planet was toward us; beyond it the sun, a greater and more glorious sun than any person of earth ever sees, was just emerging from the planet's shadow, tossing huge red flames of blinding radiance millions of miles high. It hurt my eyes, and I turned away, but Ashembe, noting my trouble, threw a switch of some kind and the radiance was dimmed. Then I saw Venus as she is—a great dark shield of a planet, picked out all round the edge with a glow of unearthly radiance where the sun is reflected from her cloudy surface.

Out beyond her a star or two burned in the heavens, and down across the picture sprayed the stream of sparks from the big motor at the prow, now working at full speed to check our momentum before we reached the planet's atmosphere. Ashembe floated beside me (I say floated advisedly—it was nothing else, although by now we had begun to feel the gravitational attraction of Venus and there was a slight tendency for things to collect at the peak of our craft), working energetically with observational instruments of one sort and another, prominent among which was a small spectroscope.

"Correct for your astronomers," he murmured as he bent over the instrument. "Rate of revolution of this planet is very slow, if upper atmosphere forms any criterion. Hence it will be well to turn the Shoraru upon arrival in upper atmosphere and land at point within sunlit hemisphere. Otherwise we might spend considerable period in the dark in a bad place. I do not like the same."* He fell silent, turning the adjusting arrangements on his instruments. "And still I do not like to do the same. It too rapidly uses up much-needed fuel. Efficiency of all fuel is fifty per cent less in atmosphere than in a vacuum. Ha, ha, you do not know that? Your scientists could long ago have reached the moon with their rockets, so foolishly discussed. They did not know that the speed of ejection of a gas increases fifty per cent at one hundred miles for sea level, although your Professor Goddard, he knew it increased twenty per cent at thirty miles above."

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*Schierstedt mentions above that just before leaving the earth the door of the inner chamber was tightened and the crack caulked with atotja. Evidently this had been removed. Possibly it was a temporary arrangement, while passing through the atmosphere, or he may have been mistaken. He was in no condition to make accurate observations, on his own account.

"What is Venus like?" I asked. "Can you tell anything about it from your instruments?"

"No, certainly not," he answered promptly. "Am I a saint? No, you call that kind prophet—am I a prophet? The upper atmosphere is deficient in water vapor and oxygen as compared with our worlds and has much carbon dioxide, but what else? We can tell when we arrive. We have learned in Murashema that planets present wide differences, according to type and stage of development, and your Venus is not only different type than your earth, but of different stage of development. Even difficult it is to predict what planet of known type will be like at known stage of development. How then in this case?"

A silence fell upon us; Ashembe was busy with his instruments and I with my thoughts as we watched the planet grow slowly larger on our sight—it seemed ever so slowly, though it was rushing toward us at a speed greater than that of the earth in its orbit, and we were dashing down to meet it at a still higher velocity. Now it had completely blotted out the sun from our sight and filled the whole of the central heavens for us—a great disc of black, rimmed round with light on which no mark or feature was visible. One by one the stars were swallowed up in that wall of blackness as we drew closer, and it seemed as though we had slowly changed our course in some way and were now falling down toward it instead of approaching it along the same straight path we had been following.

I BEGAN to feel once more the blessed sensation of weight and earthly body. I had been holding fast to the racks near the peak of the projectile and now it seemed as though we had been tilted forward and I was sliding down a steeply inclined plane toward the huge dark planet that rose up to meet us. A pencil from my vest pocket fell out, striking the edge of one of the racks with a tinkling sound. With an effort, for my muscles had become cramped during the hour or more we must have been there, I reversed position. Ashembe lay on his side, consulting a perfect congress of instruments.

I noted that the sparks from our bow motor had taken on a greenish tinge, quite unlike their previous color and that we seemed to be moving more slowly. Pointing an inquisitive finger at the sparks, I demanded, "What is it?"

"Now entering—atmosphere of planet—" he replied jerkily, working the keys of his instruments. "Must check progress. No—quickly!" he shouted, springing to his feet and bracing himself against the racks. He began to pull from one of them the atotta suit we had made—how many æons ago was it?—at Joyous Gard.

"Here," he said, pulling the suit on. "Unlock door of this chamber and each other for me. Fear I must explode whole of fuel in outer chamber to check progress and assure landing on other face of planet. . . . Lock outer door after me and return to next chamber within. When I give the signal, admit me." I did not stop to learn what the signal might be, but began climbing along the racks to where the door, like the transom over a window, now stood some twelve feet above my head. It was a difficult job, made harder by the fact that the Shoraru had begun to rock in the most alarming manner, and when I reached it, I thought I would never get the lock open.

Ashembe, tightly buckled in his atotta suit, followed, urging me to speed by jabbing me with an instrument he carried. Together we tumbled through the narrow opening; I nearly fell to the bottom of the next chamber in doing it, but managed to catch one of the racks in time and to navigate around its walls as if on a mountain ledge. The rocking motion increased and was accompanied by a sibilant whistle, low and monotonous.

Through the next door we went and the next—would those infernal rooms never come to an end?—and then finally into one so much hotter than the rest that the perspiration started out on my face. With his hand at my chest, Ashembe motioned me to go back and began to lower himself down the racks toward the peak of the projectile.

"Explode whole of fuel," he had said. That meant danger—near and pressing. I slid the door into position and turned the lock, climbing round the racks to reach the next door. What if he were killed in the explosion—or injured? What could I do in a cometary car on a Venus deficient in oxygen? I wondered if that remark meant we would be unable to breathe the air of the planet. And what terrors beside that of suffocation would lie without? What a position for a bond salesman, I thought, clinging to a rack which held a jar of liquid hydrogen, to steady myself against the alarming pitching of the car. At that moment there came a great burst of sound and a pitch so violent that it jerked loose my hold and hurled me downward half a dozen feet to what had been the ceiling and had become the floor of the chamber.

It was lined with atotta and I lit on what is supposed to be the least sensitive portion of man's anatomy, but the bump was severe, and I had no more than gotten to my hands and knees when there came a second explosion and another pitch that flattened me against the side of the chamber, knocking the wind from my body.

It was several minutes before I recovered myself sufficiently to stand upright. The pitching had ceased as had the whistling sound without. The bow seemed higher too—the space-ship was traveling at an angle that now made one of her sides the floor. But there was no sign of Ashembe. Had he been destroyed in the explosion he had created? Silence. . . . For my life I did not dare open the door to the chamber he had entered. I might, I reflected, be opening it on a vacuum that would cause me to die quickly and painfully in the cold of space from lack of anything to breathe; or I might open it on some cloud of poisonous gas that would slay no less surely. And Ashembe might be lying injured, waiting for me to help him.

Taking advantage of our change of course, I walked along the side of the car among the racks and placed my ear against the door. Silence. The suspense was agonizing. There was no sense of motion now, no sound whatever, nothing but the soft light from the sensitized quartz and the silent racks filled with materials for an interplanetary voyage. I squatted down, hanging to one of the racks with both hands, fearful of another abrupt change of direction. An age passed by.

Finally, at that ultimate moment when all hope is lost in despair and despair is demanding relief in physical action—just as I had made up my mind to climb back to the central chamber and get into one of the other atotta suits and dare the dangers of whatever lay beyond the locked door, there came three measured metallic taps against it; a pause, and then again three taps. Fumbling with haste, I threw back the complex lock to look down into the outer chamber, now directly below me, and meet a breath of icy air. There he was, hanging to the racks near the door by his hands. I reached down, gripped his arm and pulled amain, and in a moment he was beside me.

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*Astronomical opinion is by no means a unit on the slow revolution of Venus. This (with the character of the planet) is something this manuscript purports to definitely settle.

Together we climbed to the door of the next chamber, being aided by the slight slant the Shoraru now took. For all the fact that he was loaded with the atotta suit, it was Ashembe who got through first, pulling me up after him, and it was he who preceded me all the way to the inner chamber. We hurried down the side to the nickel screens.

At first I thought there was something wrong with them. They showed nothing but a whirling, indistinct mass, shadowy gray in hue, behind which, as behind a curtain, there was a dim, red light. The gray mist seemed to be flashing past at tremendous speed, and after a moment I realized we were among the clouds that perpetually encircle the planet, just emerging into the daylight zone. The rain of sparks from the motor at the bow had ceased; we were apparently slanting down toward some unforeseen spot on the surface of the planet under the influence of the momentum we had gathered. I found my voice.

"It's all right then. What did you do?"

"I exploded the helium in the outer chamber," answered Ashembe, who had flung back the hood of his suit and was now busy with his instruments again, "thereby lifting the forward end of the Shoraru and giving us direction more tangential to surface of the planet. But alas! We are now deficient in fuel. I desire greatly to find pleci in this atmosphere or in combination in surface formations. Otherwise I know not what to do but return to your planet or try the yet further inward one toward your sun. No further great distance can we go without liberal supply of fuel."

"Not back to our planet, I hope," I said. "They would throw us both in jail—unless we landed in some wild place like Africa or Central Asia—but then we'd have to begin all over again."

"Truthful," said my companion. "Therefore I am unwilling to do the same. It would certainly require redesigning of the Shoraru to accommodate helium, and even then I am not certain of that— Attend!" He pointed suddenly to the screen.

I just caught a fleeting glimpse of the surface of the planet through the rolling clouds. A surface of steaming moisture, with long, irregular blots across it—nothing more. And then we were again swallowed up in the clouds. The light behind them was stronger now, like that on a day filled with both sunshine and mist, if such a phenomenon can be imagined. I turned to Ashembe, opened my mouth to speak—and suddenly we met ground with a rending crash that threw me off my feet again and rattled the cylinders in their beds. We had landed on Venus.*

CHAPTER XV

I DO not recall having any preconceptions as to the geography fauna and flora of the planet on which we had arrived. Somewhere in the back of my head, I suppose, lurked the vague image that rises in the mind of every man on being told that there are other worlds circling through space in company with our own; the picture of a duplicate of this terraqueous orange of ours, peopled with the familiar types of men and animals, with the same system of oceans and continents, dark forests and rolling savannahs. The people would perhaps be savage, or curiously formed, or strangely colored, but there would be a fundamental likeness between them and ourselves. Beyond this point my ideas did not extend, although I had read my share of those scientific romances by writers who picture visits to other worlds, and these vaporings had left me to a certain degree prepared to find the men of Venus living amid the beasts one finds neatly skeletonized in museums.

It was, therefore, with a kind of subconscious surprise that I gazed around after I had put on one of the atotta suits and followed Ashembe through the intricate passages of the space ship to step out on the surface of a world hitherto unvisited by man. All around us was a fog, thick and yellow-gray in color, like the famous pea-soup fogs of London. Behind it a large but sickly and strangely prolate sun gave the dull illumination of a frosted electric globe.

I looked down. We were in a swamp, up nearly to our knees in the ooze. Around our legs and as far as we could see across this universal slough, an intricate tangle of pale, slimy, almost gelatinous vegetation coiled. Its clinging tendrils hampered our movements, but only here and there did it project a leaf above the surface and then feebly, as though it lacked the strength to stand upright.

Beside us the curved flank of the Shoraru rose up and away, glimmering wetly in the dulled rays of the sun. It lay on its side, its point slightly down, half-submerged, like some wallowing monster. The door through which we had left it stood just above the surface of the swamp, and but for this one object (brought there by ourselves) there was nothing to see but swamp, fog and sun.

I turned to look at Ashembe. With detached scientific calm, he was busy filling an emptied liquid hydrogen cylinder with the swamp water, snipping off and cramming in with it samples of the vegetation. This done, he handed me the container, produced a bottle from a pocket in his suit and waved it around in the air for a moment or two—to take a sample of the atmosphere, I imagined. While I was taking both containers back to deposit them in the Shoraru, he busied himself with some instrument he had brought, taking an observation of the sun.

We returned together, helping each other through the door, which Ashembe bolted behind us.* I began to open the next door inward, but he halted me with a gesture.

"Give pause," he said, his voice sounding deep and muffled through the telephonic apparatus of the suit. "This atmosphere may be poisonous, in which case it would be bad for us to carry with us into inner chambers. I will create a vacuum. Seize something."

At the base of the car (now become the side in the position in which it lay) just over where the propulsive tubes passed through the shell, was a row of keys. Hooking one arm through a rack, Ashembe began to turn them rapidly.

I heard a whirring sound, and felt strong winds pluck at me. The dimness of the chamber (the fog had followed us in) decreased, became non existent. The cylinder of swamp water rolled from the place where I had dropped it, and accompanied by the bottle of air, banged against the base of the car, and Ashembe began to turn off the keys again.

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*It is only fair to mention that Professor Appleyard, one of the members of the expedition which gave this narrative to the world, thinks the amount of time consumed in passing through the atmosphere of Venus is, according to Schierstedt's account, excessive. From measurements by astronomers we know that the atmosphere cannot be so deep as the account would seem to indicate, Professor Appleyard claims. But it should be remembered that Schierstedt wrote this account while every detail was fresh in his mind; it was a time of extreme stress and excitement for him; and in such moments the human memory is apt to occupy itself with many details of experience which make an account seem long, but which actually are passed through in a few seconds.

*But Schierstedt specifically mentions that on leaving the earth, this outer door was welded shut. Evidently Ashembe must have unsealed it—a fact which our traveler fails to mention.

As soon as he had opened one of the cylinders of liquid air he had prepared at Joyous Gard and the released gas had restored the pressure in our outer chamber to normal, we penetrated deeper into the car. Ashembe fell at once to analyzing the samples he had brought, while I, unable to help him with this, was reduced to the state of enforced idleness of our journey.

"You perceive," he explained, "I could not do thus when landing on your planet. Upon arrival I was practically without fuel, running upon inertia. Consequently I lacked power to check my progress through your atmosphere. The progress was too rapid and friction not only severely damaged my Shoraru; but rendered it impossible to open at the door, door being fused into place. Therefore I had to cut my way through the base of the Shoraru."

"My God," I said. "You're lucky that you didn't land in an ocean or on a mountain."

"Truthful. So are we this time."

I shuddered a little. "What if we had?"

"Not hard to escape. Simply by blowing out more fuel through peak of the Shoraru. But difficult is that we have not much fuel, and to expend much would place us in danger of not reaching anywhere else with the remainder."

"What about the revolution of the planet?" I asked remembering his comment that it might be well to land on the sunlit side, and wishing to make conversation.

"Very slow from observation," was the reply. "One revolution in six hundred seventy-four of your hours —about twenty-eight days. Me, I am not entirely certain of this result, but it is accurate within two or three hours. We have nearly twenty days before it becomes dark at this point."

"Why," I said, "then everything ought to be frozen here, hadn't it? At our poles where they have long periods of light and dark like this, the ice forms so deeply during the dark that the sun can't melt it again."

"Case is different. One difference is that sun is twice as hot here as at your planet. Another is perhaps the difference in chemical composition of the atmosphere and liquids. Perchance it is not water. I am now determining."

He fell silent for a moment, fiddling with his reagents and apparatus. Then:

"This air is not good for us," he announced. "It is highly deficient in oxygen—only about four per cent. of that in your or our atmospheres. I find also that it has high percentage of carbon dioxide and carbon monoxide, also small proportion of hydrogen sulphide and much dust . . ."

Somewhere in the back of my head a memory from some book stirred. "Why, that's almost exactly what our scientists predicted from observations!" I said.

"Truthful. Your scientists are backward in many points, but their spectroscopic work is well done. . . They are correct about this being the early planet also. The dust which is very much in the air is composed of silica, alumina, oxides of iron and titanium and compounds of calcium, sodium and potassium. This is exactly the formula for matter flowing from volcanic action, and gases in atmosphere, especially carbon dioxide, indicate the same thing. There must be very intense volcanic activity throughout this Venus. Very dangerous to remain here any time."

"Then the whole of Venus is like this?"

"Question. Entire of your planet is not like the place where I landed? But all this planet may be more like this place because it is the younger and more homogeneous world. For certainly, the atmosphere is altogether like it is here—thick and heavy and bad. Of the rest it is mostly impossible to tell unless we make journeys here and there, but I think it is much like this place. For one thing water is very plentiful here."

"Oh, the swamp liquid is water, then?" I interrupted.

"Yes, but with very little salt therein. Water is plentiful here, but there is extremely small amounts of water in the atmosphere. This would show that water is almost absent from most portions of the planet, though the atmosphere is so heavily saturated with carbon dioxide vapor and dust that it could hardly take up much. Come."

He was putting away the chemical apparatus.

"What about the chances for getting your pleci?" I asked, suddenly recalling that we were not on an exploring expedition but on a quest for fuel.

Ashembe shook his head. "I am in doubt. Not very promising, although this is a young world and may have it in volcanic vapor or in combination in volcanic rocks." He began to pull on his atotta suit again, and I did likewise.

When we reached the outside of the car, he paused to fix above the door one of the light-giving quartz rocks from the interior, and we set off together, plunging our way through the slimy vegetation of the swamp. I looked back once toward the Shoraru to see our little light gleaming; in the heavy air it had an astonishing amount of penetration, in spite of its paleness. And that feeble gleam represented our last connection with all the dear familiarities of earth; clear sky and winds and trees and cities and people. For a moment I gazed, then turned and followed my companion through the murk toward—what?*

CHAPTER XVI

FIFTEEN minutes of amphibian progress brought us to a place where the vines thinned out and the water became shallower. I noticed that to right and left and occasionally straight ahead vague spots were visible here at the edge; three-foot circles of changing color like the iridescence that is formed on the surface of water by a drop of oil. I pointed to one of them in question, but Ashembe merely shook his head without deigning to speak.

A little further along one of these agglomerations lay directly before us and we paused to look at it. It was apparently a solid structure, a flat, deep object floating just below the surface of the swamp, pulsating gently with a motion of its own.

"What is it?" I asked.

"An algal growth of some kind perchance," said Ashembe. "They are common on early worlds."

He turned away, but I held back and with the same impulse that makes one kick at a hat in the street, poked my foot into it. It met nothing solid at all; just as though I had kicked a jelly. But swifter than thought, before I could withdraw the foot, the whole iridescent, purple and green mass flowed forward around the offending member and then around my other foot, and held both in a soft, firm grip. I tried to draw loose, to run. The thing clung, creeping slowly upward. I bent to tear it loose with my fingers and my hand, like my feet, was seized in a steady, paralyzing grip. I could not move, struggle as I would. A chill of horror went over me.

"Ashembe!" I called after my companion's retreating form, and with a vast effort, heaved the imprisoned arm up a few inches. The growth came up with it, like a great pancake, then fell back with a solid plop as I could no longer hold its weight. It gripped my legs all the tighter for the interruption. I almost pitched onto my face in the slimy mass.

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*It is to be feared that Schierstedt is a bit of a sentimentalist. Feared, because it apparently exercises a damaging effect on his accuracy of observation.

"Ashembe!" I cried again, struggling to retain my balance, and out of the corner of my eye, caught sight of his arm as he brought the destructive heat-ray into sudden action. I heard the warning hum, saw the gleam of fierce light, and a great plume of steam sprang up and obscured the lenses that covered my eyes. The tugging at my arm ceased, and though my fingers were still caught, I could draw the hand loose and raise it. About my feet the water boiled, furiously. Steam covered everything. Then Ashembe's arm was about me, pulling me loose.

Through the cloud of steam the expressionless mask that covered Ashembe's features became visible. "Are you liberated?" he asked, anxiously, the heat-flash poised for another spurt.

I extended toward him the hand that had been caught. Around the fingers still clung fragments and tatters of the iridescent jelly of the thing that had tried to drag me down, its heart a mass of color too lovely to be deadly. He reached an inquisitive finger toward it, touched, and the jelly clung to him as it had to me. Torn as it was, it took our united strength to pull it loose, and when we returned to the Shoraru after our journey, there were still bits of it hanging here and there on the atotta suit.

"You are extremely faulty," Ashembe told me severely, as we resumed our progress, somewhat shaken by the encounter. "It is the very good rule we have never to interfere with unknown plants and animals. All have great potentialities of danger."

"But who would think a formless thing like that—?" I defended myself.

"In your own planet you have the blossoms of some plants, not only harmless looking but artistic in appearance, that are highly dangerous," was his reply. "Some of them catch insects and small animals. I have visited other planets and in each found obviously innocent objects that were really of danger. Beware."

We had been forging on as we spoke, and the water had now become definitely shoal. A moment later we stepped out on land. But what a land! The huge, languid sun still shone through the yellow fog to show us a land without earth, a coast of striated, tortured rock, with long cracks running through it away back into the distance. Under our feet the rock was hard and bare, and every few paces we came upon a little pocket of jagged stones, black and fearfully rough, like the clinkers from a furnace. Over these Ashembe paused. They seemed to excite his interest, and he picked up several to add to the collection of similar objects in the cylinder he had brought.

"I am justified," he said as we worked slowly up the rough slope from the foreshore. "This is clearly the outflow from a volcano, these rocks being ordinary volcanic cinders. We must hasten, dangerous to remain here on account of volcanic activity."

Soon we were assisting each other over and around big boulders, and then without realizing the gradations, were climbing, hand and foot, up a veritable mountain. We must have been at it for three or four hours before my indefatigable companion paused for a rest.

I looked around. The thickness of the atmosphere obscured everything, but we could see away behind us the slope up which we had come, jagged and torn, like nothing on earth, so much as the slope of Vesuvius just beyond Naples. Above us the same slope stretched on to an invisible height. The swamp, the Shoraru and the shallow where I had had the conflict with the jelly-like animal were nowhere visible.

"How are we going to find our way back?" I asked.

From his belt Ashembe produced a little instrument, not unlike a watch with a bright metal face. "Attend," said he, holding it up, its face pointing down the slope up which we had come, then slowly turning it so that it swept the compass. At one point he paused. A loud ticking sound was audible and the gleaming metal face was clouded over.

"In that direction lies the Shoraru," said my companion, pointing toward the locality the instrument faced. "This is the Boshee, always used by our explorers. In the Shoraru is a—a small radio apparatus, you would call. The Boshee is a receiver, attuned to receive only impulses from this apparatus. It has within an arrangement like ears on either side." He pointed to two tiny, bell-shaped openings on opposite sides of the instrument. "When the impulse entering by one ear is equal to that entering by the other it causes the instrument to make sound and obscures the receiving mirror. Thus it must point in the correct direction."

I thought I saw an inconsistency. "But what if it is pointed in the direction exactly opposite to the right one?"

"Then it makes the sound, but the mirror is not obscured. The impulses within the Boshee are directed in the direction from which they come—reflected. When it is pointed in the exact opposite direction, they are reflected to the back of the instrument, and there is no cloud on mirror. See." He turned the Boshee and, as he had said, the ticking was distinctly audible, but the mirror remained unclouded.

WE resumed our progress, climbing heavily over the crags that now barred our path. It was monotonously alike—gray rocks with tearing edges that crumbled and broke as we climbed, fog, red sun and silence. From time to time Ashembe would pause to add another chip of rock to his collection, noting small differences with an expert eye.

It became apparent, after a little further progress, that we were no longer going upward. For a while longer we stumbled among the rocks of a kind of plateau and then found ourselves going definitely downward through the same infinitudes of monotonous gray stone, featureless save for the fantastic shapes given them by successive outpourings and crumblings of Blutonian material. I grew weary, begged Ashembe to halt, and as we paused again, throwing ourselves flat to rest, we heard a low drumbeat of sound, regularly repeated.

"What's that?" I asked, starting to a sitting position.

"The possibility is a volcano," he declared with entire calm. "Let us proceed with caution."

We "proceeded with caution" toward the sound. The down slope, like the upgrade before it, now came to an end, and we found ourselves in a valley between cyclopean blocks of detritus from some silent volcano, all as void of life or any sign of it as everything we had passed since we emerged from the swamp of the algæ. The sound became louder, a steady boom-boom of reverberations somewhere in the distance, and when we stopped we could feel the ground vibrate with the attendant shock. Suddenly Ashembe gripped my arm and pointed straight ahead.

"You see?" he asked.

I could see nothing but the silent sun and rock and said so. "No? Well, come," and we toiled on for another quarter mile or so. My attention was taken up with negotiating the ground, which now began to show a series of alarming cracks beneath our feet, but when we next halted I could see dimly, in the distance, a black cloud like a darker spot in the surrounding murk, floating high above the earth. Beneath it and equally far was a great red funnel of flame, dimmed to a ghostly pink by the distance. The booming sound we had heard came from it, and all around us the vibration of the ground was now clearly perceptible.

"A volcano?" I asked fatuously.

"Certainly. What else?"

We pressed on. The shock of the eruption became more pronounced as we advanced. Here and there small pieces of the gray rock would tumble from overhanging balconies of stone, startling by the sharp clash of sound they made in that enormous silence. The red outpouring of the volcano, with its crown of black cloud, became clearer, though the air was thicker than ever. One could see millions of tiny dust-motes dancing about as in a sunbeam. Off to one side, from a long crack, a slow curl of heavy vapor oozed into the air. I pointed it out to my companion.

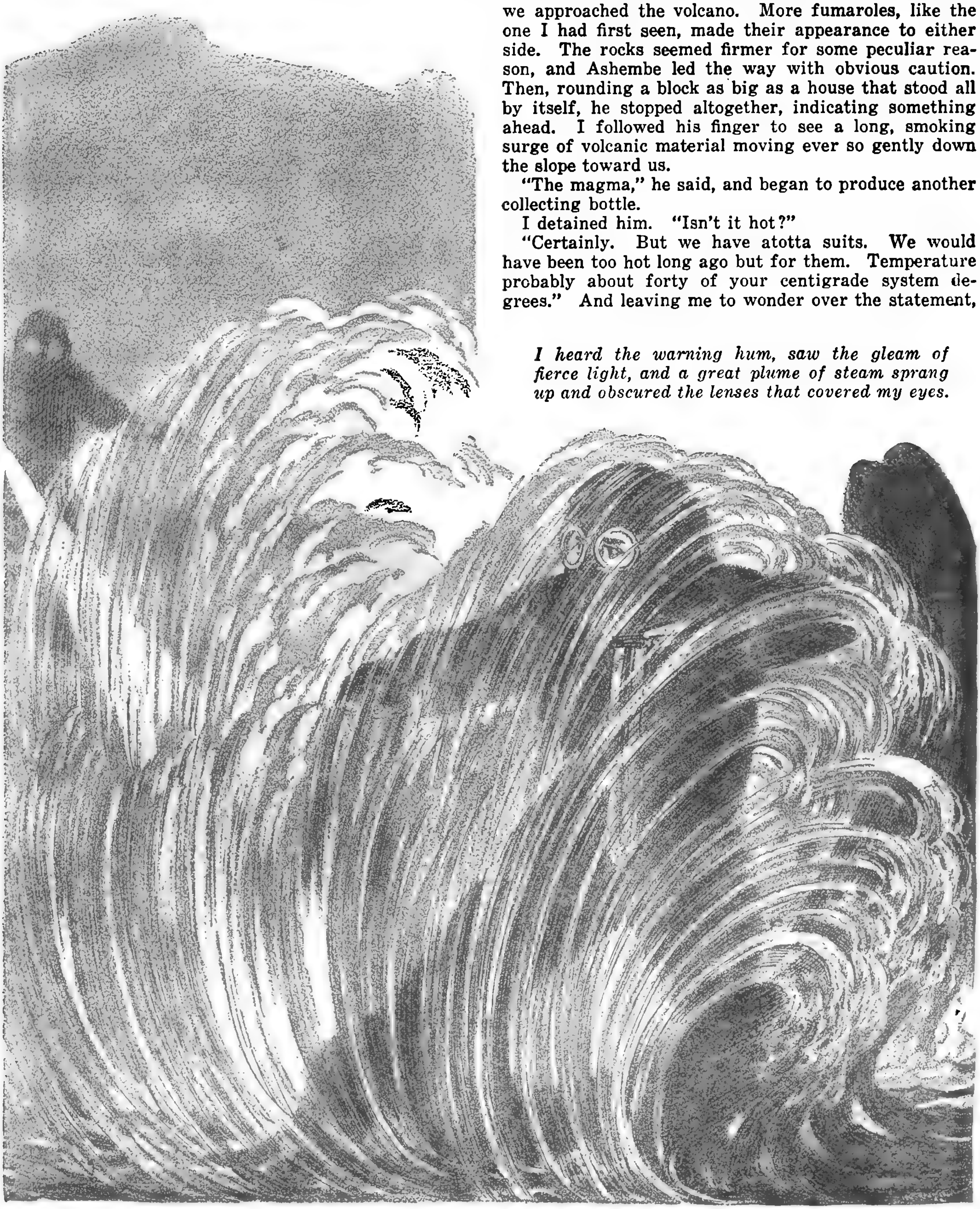
"Ah!" he cried with awakened interest and in an instant was clambering over the rocks toward the spot, to hold over it one of the bottles he had brought. "If there is pleci anywhere here, it is within such gas," he announced as he put the bottle away in one of the pockets of his suit.

Still forward. (Why didn't he turn back?) The long valley up which we had been traveling gradually wore out to a flat and then became an upward slope as we approached the volcano. More fumaroles, like the one I had first seen, made their appearance to either side. The rocks seemed firmer for some peculiar reason, and Ashembe led the way with obvious caution. Then, rounding a block as big as a house that stood all by itself, he stopped altogether, indicating something ahead. I followed his finger to see a long, smoking surge of volcanic material moving ever so gently down the slope toward us.

"The magma," he said, and began to produce another collecting bottle.

I detained him. "Isn't it hot?"

"Certainly. But we have atotta suits. We would have been too hot long ago but for them. Temperature probably about forty of your centigrade system degrees." And leaving me to wonder over the statement,



I heard the warning hum, saw the gleam of fierce light, and a great plume of steam sprang up and obscured the lenses that covered my eyes.

he was off with his bottle to get a sample of the gas from over the burning lava.

We turned back after that, guiding our course by means of Ashembe's "boshee." For myself I was quite ready to stop and take a prolonged rest. We had been traveling for something like five hours and had eaten nothing in that time. I was aching in every muscle from the exertions of climbing among the torn and broken rocks. But Ashembe's desire for speed was insatiable. "Dangerous to remain," he said, and urged me on to ever greater efforts.

At the time it seemed unreasonable, but the reason became apparent as we reached the foot of the valley up which we had approached the volcano. Smoke and steam were pouring from a crack at the left of our path in quick, short puffs like the exhalation of an automobile's exhaust. There was an ominous underground rumbling, and we had gotten hardly two hundred yards beyond the spot when the rumbling rose to a roar and the ground began to tremble so violently we could hardly keep our feet.

Casting a glance over my shoulder, I saw the crack widen and run. Through the mouth thus made a quick flicker of flame poured forth. Not merely dust, but rocks of considerable size began to fall about us. The sound of the eruption rose to a deafening outburst. "Come!" I heard Ashembe's shout faint above the racket, and tailed after him down the quivering path, giving no attention to direction. The shower of rocks and ashes increased to a perfect hailstorm.

We ran. My God, how we ran! Stumbling and falling, climbing over blocks, avoiding the falling stones by a series of miracles, short of breath, weary and worn, but driven on by desperate fear we raced with death. I don't know how long we ran or in what direction—I only know that I would have given anything to behold even the swamp with its sickly vegetation and deadly algæ again.

It was I who stopped first. Stones or not, I could not go another step, and I flung myself down in the shelter of an overhanging block of stone, declaring my intention to move no further. Ashembe, unwilling perhaps to leave, sank down by my side, and for some time we lay there, breathing in deep gasps and wondering whether the stone would collapse on us or a lava stream engulf us.

Neither of which happened. The dust and ashes grew round us like a black snowstorm to a depth of several inches, but the fall of stones had ceased, and we had managed to put enough distance between ourselves and the eruption to avoid the lava streams. After an hour or so of rest, we set out again, moving cautiously and regulating our direction by the "boshee," but making a wide circuit around the scene of the eruption. We reached the edge of the swamp dead beat at a point not at all resembling that where we had left it and obviously some little distance from our car, which was invisible in the mists.

CHAPTER XVII

BOTH of us snatched a little food and fell asleep like dead men, not troubling to remove our suits. The air of even the small space of the car was wonderfully good after ten or twelve hours in the constricted quarters of the atotta garments, and I spent what seemed an eternity in slumber to wake up stiff in every muscle.

Ashembe was already up, conducting a chemical analysis at the end of the chamber, a slight frown of concentration on his face as he worked. I yawned and with an effort stirred myself to action.

"I'm hungry," I remarked.

"Ah, so you are aroused," my companion answered. "Your muscles feel as though ankylosed?"

"I don't know," I said truthfully, "but they're stiff. Ouch!" I had essayed to stand up.

"Apply this with care," he said, tossing me a little box of translucent ointment. "It will remove the painful feeling."

"Do you find any pleci?" I asked him as I stripped to rub in the ointment according to his directions.

"Very small quantity in gas from the crater," he said. "I fear not large enough to use without extensive recovering process which would consume much time and mercury. Such would make the trip uneconomic and I hesitate to use."

"That's too bad," said I. (The ointment was really wonderful—it stung and burned but removed all the stiffness and fatigue from the muscles to which it was applied.) "What caused that volcano to break out like that? Are there more eruptions coming?"

"This is the very young world, like your planet or mine in an extremely early stage of history. Water not yet formed upon the surface. All is semi-fluid state underneath, with thin crust, liable to break through at any moment. I suspected the same from preliminary observations. It is in the state corresponding to the Archæozoic of your scientists. Represented by oldest volcanic rocks. Very low forms of life alone exist here."

"Then it will go through the course of development our world has?"

"Perhaps. Who can tell? Now all is very early; nothing but algal growths and eruptions. But I do not think it will be the same. Higher forms of life will be very different when they develop. This Venus is unfortunate. When your world, like mine, was in the highly fluid state, the attraction of the second star that produced the planets produced also moons in our worlds, and the effect of this production set them spinning at comparatively rapid rate. This caused fast alterations of day and night, not giving our worlds chance to cool off at night and making the temperature even. But on this Venus it must become always very cold at night and grow very hot in daytime. The higher forms of life, when they develop, will be more heat and cold resistant than our forms and will therefore be different."

"Is your world so much like ours then?"

"Very much, but longer developed. Do you not wonder that I should have the same bodily form as you? This is because of the law of adaptive symmetry, which we have found to be universal. That is, similar conditions always produce similar effects."

"And your conditions on Murashema are similar to ours? . . . By the way, this blue stuff tastes uncommonly good. What is it?"

"A protein compound, valuable as a stimulant. Yes, our conditions are similar. Our planet occupies the same relation to its star as this Venus does to your sun. But we have two moons. The geological history is much similar, however. We can trace to the early rocks at first algal growths, then marine forms, insects, amphibian and semi-reptilian forms, and finally man-forms. There are small differences, but the affiliations are stronger. Your own scientists have the beginnings of the correct idea that similar causes produce always similar effects."

"How is that?"

"Do I not find in your knowledge-book and your biological book what they call 'convergence'? Your shark, your fish, your ichthyosaur, your mosasaur, your dolphine, they all have the same outward bodily form. They all have the same mode of life and pursue the same kind of food. Many internal details are dissimilar, but they have more likenesses than dissimilarity.

Your rhinoceros and your monoceratops are equally alike, though both are different to start with, like all the marine animals I have mentioned. It is because in such cases animals are coping with similar environments. That is, the life spirit is dealing with similar causes and produces similar effects."

"I see."

"Attend then. Your scientists have this idea. They only lack the application of it to the evolution of worlds as like individual forms. But . . . that is too much to expect of them in so early stage of development. They have only your world to base upon. Though spectroscopic work of them is very good, they should have made connection with other worlds without trouble. . . . You have habitable planets around your sun—your own planet, your Mars. This Venus just beginning. Your Mars is undoubtedly inhabited, but by very different type of inhabitant, as the planet has very variant character from yours and ours. Our investigations show there are many types of planets, recognizable and catalogable. Your earth and Murashema both belong to type 'ora' as we know the same. In this type, since conditions are the same, only one form of life is possible just as only one form of body is possible for animals living in the water, like your fish, shark, icthyosaur and dolphin. This is why in body form I am duplicate of . . . Ah, sorrow."

I looked up.

"Not sufficient quantity of pleci in any of these gases or rocks to be of economic recovery. What now?"

"There's another planet—" I began.

"I am aware. But without atmosphere. However, there is very good opportunity. We may be able to obtain pleci from the atmosphere of the sun at that distance, since pleci is very light and is driven out to high distances through radiation pressure. With no planetary atmosphere to interfere, it should be present."

He fell silent, absorbed in thought, and after a moment or two began to work the calculating machine he had been using so much on our journey. Finally:

"There is a choice," he said. "It is difficult. . . ."

"Yes," I said, encouragingly.

"Three things are to be done. The first is to remain on this Venus and extract quantity of pleci from volcanic gases. Difficulty is that following such operation, we would need a necessary return to your earth for larger supply of mercury. Also it would take a very long time, four or five of your years. Also it would be a work of danger, but all courses remaining open have parallel dangers.

"The second course is to go on to your inner planet Mercury. How is it that metal and planet have the same name? Danger of this course is that we do not find pleci drive far enough from your sun by radiation pressure. Also there is the danger that we may land on wrong place on this very minor planet, on the very bright side where quantity of heat would be bothersome, or very dark side, where we could not work. There is also danger that uncareful operation of this Shoraru would cause us to miss the planet entirely and throw us into your sun, then good-bye. Also that we cannot go anywhere else if fuel is all gone and pleci is unobtainable.

"The third course is to return to your earth, reconstructing now Shoraru with helium power. The danger is that helium power plant would be insufficient after all to return me to Murashema, and thus I would wander for perpetual time in empty space. Not to speak of the delay. But you would arrive home."

I thought of the manner of our start, of the officious Stanbro (it seemed like another existence as I sat on the racks of the space ship gazing at the apparatus about), of the inquisitive police officer shot through with the heat-ray flash and of his companions perhaps killed, certainly injured in the explosion of our start. There was no chance for me in such a world. Go somewhere? Start over? Where and how?

"I'm for the second plan. The most dangerous thing is frequently the safest," I said boldly.

Ashembe glanced at me with approval.

"I am glad you say thus. May you be happy." He made the formal salute of courtesy. "What then, let us depart." And he turned to stowing away the various articles that had been taken from their racks.

The explosion of our departure from Venus was not nearly as severe as when we left the earth, largely perhaps because we had to back out of the planet's atmosphere by using the tube in the prow of the space ship.* With an economy of effort that I admired the more because such an idea would not have occurred to me, Ashembe kept us waiting for several days more in the swamp till the stern of our craft pointed in a straight line toward our destination. Half an hour later we were once more out in the black emptiness of space, dotted with the blazing points of the stars and with the sun shining so violently in the direction of our progress that we could not even use the nickel mirrors on the side facing it.

If the trip from the earth to Venus had been a bore after the novelty wore off, that from Venus to Mercury was nerve-racking. Every possibility of destruction he had outlined was fresh and clear in my mind—and I had nothing else to think about. Tortured by countless visions of death, I hardly slept at all during the two days the trip consumed, and Ashembe, busied with computations and navigation (now become a task of extreme delicacy) was of no help at all as a companion.

It was about this time I discovered that my watch had stopped. Terrestrial time was, of course, only an abstraction for us now, but I wound it up again and marked the minutes as we spun through the void toward what might be our last stop in the universe.

It was about thirty-six hours from the time I wound my watch when Ashembe called me to look through the screens. Spread out below us (for we had already reached the stage where we seemed to be falling down into it) I saw the panorama of the planet Mercury, my first glimpse of a sight no man will behold again till earthly science reaches the stage of that of Murashema.

The surface we were approaching was on the border of night and day, like a moon at its half-moon stage. And like the moon when seen through a telescope, all the upper surface of the planet was pitted and ridged with wide, jagged rings that cast long shadows where light joined dark. Very tall must those Mercurian craters be and very rough their sides.

Toward the dark side they seemed taller than on the side facing the sun. On the solar side, indeed, there was a tendency for them to lose form and run into one another, to have less jagged and more rounded edges. The craters just at the border line resembled holes punched in the sand with a child's stick, while those over on the light side looked like the same holes after a wave has passed over them, breaking down the sharp lines to a conformable smoothness.

CHAPTER XVIII

THE ground of the planet rushed up at us with a speed I had not imagined possible. I caught a glimpse of the peak of one of the mountains flashing past, then saw Ashembe feverishly working the keys at the base of the Shoraru. There was an outburst of sound, loud even inside the car, as he fired the motors at the base, all at once, to check our too rapid progress, and right on the heels of the explosion came a shock that sent me rolling from one side to the other of the compartment. We had landed.

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*More likely because of the muffling effect of the oxygen-free atmosphere of the planet. The tube at the bow, on Schierstedt's own story, was an exceptionally large and powerful one. . . . And lower in the paragraph—how did they turn around? He does not mention it, but from subsequent details, it is evident that they did turn so that the bow, not the stern of the space ship, pointed toward their destination.

I picked myself up (with astonishingly little effort) and turned to speak. At that moment there came another shock that pitched me off my feet again, then a whole succession of minor bumps and the Shoraru rolled over and over, with Ashembe and me frantically clawing for some hold as it tumbled us down. It came to rest with a crash, and there was another racket over our heads. I managed to reach a sitting posture.

"What happened?" I asked.

"We have rolled down a declivity," said my companion. "I fear that certain objects have fallen upon our car also, which will cause egress to become difficult."

He turned to the screens. That at the base of the projectile showed nothing whatever, unless the spotted blackness that followed when the power was turned on were a representation of a pile of rocks. Those at the peak, to which we presently made our way up the steeply sloping side of the car, in all but one case gave the same result. From this one we could discern the edge of a rock, hazy and out of focus because of its nearness, cutting off most of the view, but leaving just space enough to show us a single star bright against the black of the heavens.

The explanation was obvious. We had struck on some insecure pinnacle of rock and the crash of our arrival had started a landslide that had carried us downhill and nearly buried the whole car under a huge pile of rock.

I looked at Ashembe in something like dismay. "Can't you start the car and pull us out?" I asked.

"It might work serious damage to outer surface of the car which we shall need," he said. "I think I know better way. Come."

We slipped into our atotta suits and Ashembe took his destructive flash, over the outlet of which he fitted a disc of translucent material. "Dispersion screen," he commented. "This will cause the ray to have wide range like one fish-eye lens."

At the outer door he paused. "Hearken," he said. "I will tell you a thing. We do not know how well vacuua conduct sound. When the door is opened we will be inhabitants of a vacuum. If it should prove impossible to hear me after the door is opened, I wish to say these things at present. I desire to blast the hole through these rocks. If they should cause injury to me in falling, do not fail to close the door again, turning on the liquid air after returning to the interior compartment. You have watched me sufficiently to apprehend how to operate the car in that event. You will be able to pull it out, and by careful economy of fuel may have sufficient power to reach your earth. Farewell."

Before I could confess to the apprehension with which this speech filled me, he turned to the door and began to snap back the locks.

He swung it open quickly to show a pile of brown, granite-like rock glittering frostily in the reflected light of the interior. A rush of air, like a strong wind, tore at me, and even through the atotta suit I felt the nip of cold—the vast cold of space, the absolute zero below which nothing can exist.* But I had no time to notice my sensations.

Ashembe had turned his flash on the rocks and, brighter than the light of the car's interior, the impact of it lighted up the stones for a minute in a circle at the opening.

Then they appeared to move back out of sight in a dancing circle of sparks. Instantaneously a tunnel appeared in the edges of rock. But it did not endure. With a rumble that became a thin rattle in the airless void, more rocks tumbled in upon the burning ray, to be again dissolved into nothingness as they fell. One small stone came right through, even to fall beside us on the floor of the car, a round, smooth object, its surface covered with tears of fused material where the tough granite had melted under the impact of the ray.

"How long will your flash last?" I asked, looking over Ashembe's shoulder into the ever-deepening tunnel where solid rock was disappearing forever in a flash of sparkling light. He paid no attention, holding his instrument steadily on the circle of stone. I tapped him on the shoulder and repeated the question.

The flash went off and he turned the blank mask of the atotta helmet toward me. "Ee—ee—r," I heard, hardly louder than a mouse's squeak. The vacuum did cut off sound then.

The flash went on again. This time, by some freak of pressure, the overarching blocks of stone held, and we could follow the track of the flash far down into the black heart of the Mercurian mountain. Ashembe turned his weapon slightly upward, bearing on the rocks overhead. For a moment they too held, then as some key-piece dissolved in the ray came crashing down. A big block, scored to concavity down one side by the ray, rolled right in under his outstretched arm, striking him heavily on the knee and bending in one of the racks as it carromed off. Ashembe went down like a nine-pin, dropping the flash.

My eyes caught an instantaneous impression of the deadly tube swinging in a wide arch as it fell. Ashembe writhed in agony, trying to reach it to turn it off, and as he did so it cut a neat semi-circular hole through the wall of the car and bored a new tunnel into the rocks in that direction. All this happened in an instant—in the next I had the flash off and was bending over my companion with eager questions as to whether he was hurt, forgetting that the vacuum imposed a blanket of silence upon us.

Evidently cruelly injured, he strove to rise, but could not make it, and fell back on the floor of the chamber, pointing to the inner door. I snapped back the locks and with the strength of desperation pulled him inside as though he were a doll. Fortunately I had sense enough to close the door behind me and turn on a cylinder of liquid air to make up for the atmosphere that had rushed out at us in a cloud of vapor congealing to white hoar-frost when I first opened it.

As the air filled the inner compartment, I turned to Ashembe with eager questions. "Are you badly hurt?"

"I think that not," was his astonishing reply. "Only a broken leg bone."

A BROKEN LEG seemed to me no cause for cheerfulness, but as long as he thought so it was all right. With some difficulty I managed to get him through the succeeding doors into the inner compartment. Then I found why he considered it trivial.

He had me lay bare the injured member and place him on the floor of the compartment. Under his instructions I then set up one of the mercury tubes he had used in the transmutation experiments at Joyous Gard, so that it bore on the leg just where the fracture had occurred and inserted between the tube and its objective a slide I found in one of the racks. Still following his directions, I next hooked up a helium motor to the tube and then turned it on at about one-quarter speed.

When the low hum of the motor began, instead of the vivid glare that came from the tube at full speed and without the screen, it exuded a soft radiance, not unlike that of the sensitized quartz that supplied us with light. Ashembe lay back and closed his eyes.

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*Another instance of defective scientific knowledge resulting in empty rhetoric on Schierstedt's part. Nobody any longer seriously believes that nothing can exist at absolute zero.

"Nothing more to do," said he, "but await the reconstruction of the bone."

"What is it and how does it operate?" I asked.

"You see what is it," he answered. "It operates by stimulating to the high point all interior metabolic activities. The bone is set in proper position. By being held in the same position, it would knit slowly and normally. But softened emanations from the tube cause the process to take place with speed."

That was all there was to it. By this time I had grown to expect almost anything from Ashembe's apparatus, and I was a bit disappointed when he did not pronounce the cure complete after an hour or two of exposure to the ray. When he called me, however, it was to have me turn off the motor and anoint the leg with the healing ointment that had taken the weariness from my limbs the day of our invasion of Venus. "There is some pain," he told me, "and the ointment is merely for this purpose. Otherwise cure will care for itself. Your medical work, unlike your astronomic work, is very far behind. Your doctors do not know that natural methods of cure are always better. They have not yet attained simplicity. Drugs are very bad except for rare cases of stimulants. What is needed is something to speed up metabolic processes, which always cure if allowed to do so."

The curing of the leg took three days by my watch. I say "days," though there was no difference between day and night either within or without the car, and we were spinning around the sun on a planet which has neither day nor night and whose year lasted barely ninety earthly days.* Indeed, it was not until that period when Ashembe's leg was setting that I realized how much of an empirical creation of our earth-bound scientists is time. The screen at the top of the car revealed the same vista of blank heavens with insolently shining stars, whether it was day or night according to my watch. Events within the car flowed along the same as ever. When I was hungry I ate and when sleepy slept, but I no longer thought of regulating either eating or sleeping by the time of day. After a while, indeed, I merely kept it going and ticked off the flowing days on the flyleaf of a book to give myself something to do. I was quite uncertain of how much time I had dropped out during the journey to Venus and the intervening hours we had spent there. And, lacking any means of discovering what day or what time of day it was on earth, I simply opened a new calendar of my own, making January 1, year 1, date from the time I wound my watch, half way between Venus and Mercury. The dates mentioned in this account hereafter are expressed in that measurement, though as to what earth time they represent I am quite unable to tell. My watch may be days slow or fast by this time. . . .

I am digressing. Ashembe ate prodigiously during his convalescence, more than I had ever seen him eat. He explained that the heightened metabolic processes in his leg caused the difference. "The leg is living faster," he expressed it. "If I were very sick with interior disease and had the tube turned on my whole body, it would cause me to live faster throughout and still more nourishment would be needed. You see?"

"Not quite."

"Stupidity. Attend. On your planet, when you are sick, it takes you three, four weeks to recover from illness, not so? Good. You recover because body resists illness and finally throws it off through metabolic processes. Ray tube hastens these processes, compressing three or four weeks to three or four days. You see? Consequently you need amount of food that metabolic processes would ask for in three or four weeks."

"Oh," I said. "It's as if you sacrificed three or four weeks of your life in order quickly to get over being sick."

"Yes, but one avoids the tearing down that illness always brings, thereby lengthening life. Consequently you really sacrifice nothing."

Whatever the theory behind the method, it certainly healed the broken leg rapidly. On the fourth day from the injury (January 6, year 1) Ashembe was able to test it by taking a few tentative steps. He subjected it to further baking in the ray and on the next day was about again, though somewhat limpingly.

We had discussed at length the possibility of getting out of the rock piled above us by further use of the destructive flash and finally abandoned it as impractical. "It is evident from what I did accomplish," said Ashembe, "that upon that side we are against the rocks of the mountain. The more we used the ray on these rocks, the more they tumbled from above upon us. We will have to blow the Shoraru out of this place by the use of motors, I highly fear. We have already wrecked the outer shell of one compartment where the ray bored through it and it would be dangerous to run chances of doing the same on the opposite side."

He insisted on waiting two days more, giving his injured leg intermittent baths in the ray to bring it to full strength before we attempted the perilous experiment of blowing out. And then one morning he announced briskly, "Come, all is prepared for our trial."

We lay on the floor of the car side by side, but facing in opposite directions. At the word of command, we were both to turn on all the motors within reach, then turn them off again quickly so that the blow should not be so violent as to carry us clear away from the planet, whose small gravity would exert none too strong a hold on us. The impact of the first discharge of the motors, we surmised, would carry us free from our trap; if it did not—well, we would cross that bridge when we came to it.

As we stretched out, Ashembe opened a cylinder of liquid atotta, and as a final safety measure cast small belts of the material around both of us, to hold us in position for the expected jerk. A moment later he gave the word. "Preparation," he said, and then "Now!"

He was half a second before me, and as he was on the lower side, I think this saved us. I felt the Shoraru give a violent lurch, turned all the keys I could reach, and then, as we swung clear with a rending crash that reverberated through even to the central car, turned them off again. The breath was knocked from my body by the shock, and, before I had recovered it, there came another and equally violent impact, and we were rolled over and over as the space ship struck again and tumbled down some peak of the planet.

CHAPTER XIX

FOR a few minutes we lay still, half-dazed by the impact. Ashembe was the first to recover, and producing a knife from his pocket, began to cut loose the atotta belt he had cast around himself. A moment later he had me also loose, and was helping me to my feet. The Shoraru now lay on one side with a slight upward angle, and the screen at the base, which was the first we turned on, showed us a landscape of rock, a wide open plain, seamed across with deep cracks. (What if we had fallen into one? I thought. Not all our motors would have gotten us out again.)

The whole prospect was bathed in a blazing brilliance of light, a refulgence so intense that it seemed to turn the rocks on which it rested to polished metal. Far in the distance (several miles, as nearly as I could judge distances in that clear and airless void) a ring of low hills lay round the plain. We were evidently in one of those wide crater plateaus which on Mercury, as on the moon, cover the entire landscape.

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*Mercury keeps the same face always toward the sun, as the moon does toward the earth.

We turned to the screens at the peak. On this side we were nearer to the ring of the crater—all around the view presented we could see mountains running away and around in the distance; very mountains, indeed, taller than anything on earth but the highest of the Rockies, and like the Rockies, nude of vegetation, bare and cold even in the intense sunlight. They stood out with astonishing clarity against the black star-studded nothingness of space, no interrupting atmosphere softening the grim outlines, and had it not been for the effect of perspective, even the most distant would have seemed right upon us.

The screen that lay upward above our heads, revealed nothing but the now familiar background of star-studded night, now curiously crossed and woven about with vague lines of brightness like the auroral light of earth. But when Ashembe turned on the screen on the opposite side to the mountains, we both staggered back with a cry, for the light that entered and filled the whole chamber with a fiery radiance was more than our eyes could stand. Even indirectly we could not bear to glance at it, for we were looking directly into the eye of the sun—and such a sun! A sun hardly further from us than the moon is from the earth.

For a second only its light paled the quartz that illumined the chamber and then, even as Ashembe reached to turn it off, there was a snap somewhere and everything seemed to go dark. "Malediction!" cried my companion. "It has burned out the photoelectric cell." Try as we would we could no longer induce the screen on that side to work—and this loss caused us trouble later, as I will tell.

However, for the moment, we had other matters to consider. We hurried into our atotta suits, and after loading himself with a ray motor and two or three cylinders, Ashembe led the way cautiously to the outside of the Shoraru.

We found we had fallen with the wrecked outer compartment of the space ship underneath us, and the only door left to emerge by lay at the top of the car, several feet from the ground. Unburdened as I was, I led the way, and balancing with difficulty on the round, smooth surface of the outside of the ship, reached down a hand to pull Ashembe up. He glanced around for a moment as he came through, then handed me his cylinders and then dived back into the interior to return after an interval with a pliable ladder of atotta, which he fixed to the inside of the door, so that it dangled down over the smooth surface of the shell.

As I waited, I experienced a curious sensation. My back and one side were exposed to the sun as I lay on the car, and even through the insulation of the atotta suit, these began to feel uncomfortably warm. On the other hand, a shiver of cold ran through me from the opposite side, and I realized that in this atmosphereless land, wherever the sun struck, the heat was as intense as was the cold of the shadows. It was like sitting before a huge bonfire on a zero night.

We lowered ourselves down the swinging ladder, and without paying the slightest attention to the landscape (I had expected him to strike out on a journey of exploration) Ashembe set down one of his cylinders and began to rig the motor up beside it. This done, he took from the pocket of his suit a tiny apparatus like a windmill, with sails which, when unfolded, were about six inches long. This was fitted over the top of the cylinder, and to it was connected the motor. Two more cylinders were similarly treated, and when all three were connected he turned the switch sending the sails on his miniature windmills spinning merrily. Then motioning me to follow, he started back to the interior of the Shoraru.

When the entrance compartment had acquired its quota of atmosphere from a cylinder of liquid air, he explained. "Pleci," said he, "for certain exists in the outer atmosphere of your sun, and being extremely tenuous is blown outward by radiation pressure. It exists about here in very small quantity—so small that the finest of the artificial vacuna you produce in your laboratories have more matter in them than there is pleci in the hereabout. But since we are so far from your sun as this, there is nothing floating about but pleci. Nothing else is so light as to be so far cast out from the sun by radiation pressure. Therefore, we obtain pure pleci. The apparatus installed is one for concentration of the same. It produces both chemical and physical concentration* and the cylinders being valved, installs pleci therein. Come, we must set up more cylinders or the project is uneconomic."

We secured several more empty cylinders (including those which had held liquid air and which had been emptied during our various trips to and from the interior of our car) and set them up in series with those first installed, each with its little windmill atop.

After that there was nothing to do but return to our interior chambers and wait. There we stayed until January 18, Year 1, by my watch—a space of something less than two weeks, during which we went the round of a series of distressingly uninteresting activities; eating, sleeping, talking. To relieve the monotony of the days, I even studied mathematics, but declined Ashembe's offer of the use of his Tensal helmet for the purpose. After all, I had plenty of time before me, and what was the use of swallowing all that knowledge at a gulp when the time could at least be passed away by acquiring it in the usual manner.

Ashembe occupied himself with minor adjustments and construction work inside the space ship; preparations for the long jump from Mercury to wherever we were going. Motors had to be furbished up and examined for flaws; the heating arrangements for the interior of the car he went over with extreme care and in much detail, and during the last two or three days he spent every waking moment over the burned out photoelectric cell. The repair was not an entire success; the potassium of the cell had undergone a certain amount of chemical decomposition, he informed me, and he lacked both the space and the laboratory facilities to recover the pure metal from the salts that had been formed.

IT was the eighteenth of January, then, when we donned our atotta suits and again made the trip to the outside. The first thing I noticed was that two of the windmills had ceased to revolve and that others were going very slowly. Ashembe's gesture was one of pure delight when he saw this, and he hurried to replace the cylinders under these windmills with others. They were filled, it appeared. The loaded cylinders were taken to the outer compartment of the car, and released into the vacant space at the bow that had held our helium fuel.

Two of the bow compartments were still filled with the gas that had borne us from the earth, and of all the sights I saw on that singular planet I think that of the emerging helium was the most curious. In the shadow of the outer compartment it fell out, a thick, visible steam that curled along the floor, gradually rising about us to the opening above our heads. As it reached the dazzling rays of the Mercurian sun, it suddenly danced with rainbow radiance and as though blown by a strong wind (though there was no stir on that airless and lifeless planet) trailed off and away to the distant mountains.

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*"Physical concentration" is comprehensible, but what does Schierstedt mean by "chemical concentration"? He must have misquoted his mentor here, for in the same paragraph he mentions there is nothing but pleci to concentrate. One error for the writer of the manuscript.

Another month elapsed before we had gathered enough of the precious pleci to fill all the compartments at the peak of our space ship. The time was spent in eating, sleeping, studying in the interior of the car. It was no use going out on exploring expeditions. The heat and cold of the unchanging Mercurian landscape were so severe that they bit through even an atotta suit after a small period of exposure, and the long cracks across the plateau on which we had landed made any journey of exploration doubly dangerous.

I may say here for the benefit of those few who will be interested, that the material of Mercury is an igneous rock of extremely ancient character. At the surface on the side where we landed (near the north pole of the planet and on the light side close to the edge of the dark) the impact of solar heat and the small particles of material which have been driven out from the sun by radiation pressure in the course of ages had exercised a certain erosional effect on the solid rock of the surface. A close examination of it showed it filled with minute pits and bubbles and at times, stepping on an apparently solid piece of stone, one would sink ankle deep in the crumbling material. To complete the picture, a thick coating of dust lay over everything, dust a foot or two deep. Mercury, from my one view of it, is certainly not a place I would care to visit again—a shell of a world, wrecked and rotten, spoiled in the making. A melancholy place. . . .

CHAPTER XX

WE left Mercury late in February of my year 1, sliding gently away with hardly a shock as Ashembe set the motors going gently, one after another. Indeed, I noticed that not one of them was turned up to full power at the beginning of our long journey; pleci (or coronium, to give it its earthly name) appearing to develop much greater reservoirs of power than the helium we had been using, and thus obviating the necessity for the cruel jerks that had marked our starts from the earth and Venus.*

It was some days before Ashembe began to work up to full speed, watching his instruments keenly as he made every change in the amount of power applied.

"We must beware of the strong attraction of your sun," he informed me, with an absorbed air, one day. "I do not dare to turn on the basal screen, since to do so might burn out more of the photo-electric cells at our present juxtaposition to the sun. Nevertheless, it is evident from instrumental observation, that the sun is exercising strong gravitational influence over us, pulling the stern of the Shoraru around toward it. I dare not use full power for escape, since the resulting gravitational attraction would cause us serious injury by crushing. You comprehend?"

"But why didn't it hurt us when we were coming in the other direction?"

"At that time we attained exceeding speed due to the additional attraction of the sun *plus* power of the motors, once we had escaped from the earth's attraction. Now all is different. We are going in the opposite direction and must work away slowly."

The effect of the sun's gravitational influence was noticeable in another way. Every loose object in the car was being gradually drawn to the base of our craft, and although the total effect of gravity was slight, it was notable that one felt more comfortable when standing on the base.

This sensation suffered a gradual decrease as we made our way from the sun, but it was nearly two full weeks before Ashembe would let me turn on the screens, and even then only at the peak of our craft. When I did get a view of the heavens, I saw right among the sprinkling of stars one big round object with a perceptible disc—a moon of grandeur, right overhead, toward which we seemed to be steering. I called my companion's attention to it, but he gave it barely a glance before returning to his work of calculation.

"What is it?" I asked.

"Nothing but your planet, Mars," he said. "Not of great interest. A type 'tho' planet, with nothing unusual about it."

"What is a type 'tho' planet like?"

"Very old. Very dry. Quite chilly by your standard. Forms of life in such a planet are attenuated and cold-resisting, usually incapable of developing high forms of intelligence."

The subject interested me and I pursued it. "Why were they unable to develop high forms of intelligence?"

"Temperature of this planet has always been somewhat severe in comparison with the amount of time allowed for the development of living forms. You comprehend that only at certain eras in a planet's existence can life develop. Must not be too hot or too cold, or have too little atmosphere. Very well, now. On a type 'tho' planet, when the era of life development begins, the planet is already so old that the developing forms of life have to struggle with very unhappy environment before they can grow far. There is too intense a struggle for existence, like with the life on your earth near the poles and in deserts.* Highly specialized forms must be developed to exist at all, and specialization kills off future prospects of development. Aridity and cold of your Mars, as with other type 'tho' planets, makes the competition for existence so severe that it is impossible to develop high intelligences and high forms of existence."

"Oh . . ." I said. "Then the people on earth who dream of some day communicating with Mars will never realize their ambition?"

"Never. Would they hold communication with animals of the scale of intelligence of your lizards? Such are about the highest type of intelligence possible to Mars. The development of high intelligence can only occur when those who are to develop it have plenty of leisure, gained by evolution of strong characteristics in hard, but not too difficult environment. Your scientists know this. Your anthropologists know it from the history of your men and other animals. They do not apply it to conditions of Mars. Why not? So many times your scientists have the correct data and know the correct natural laws, but fail to apply them except in a very limited way. Why they do not apply them to their knowledge of Mars? They know the climate is unsuitable for the development of high intelligence."

"But they don't know it," I pointed out. "They don't know that it has always been unsuitable. It may have held intelligent beings in the past and these may still be carrying on."

"Oh, hell, no. Even if your Mars had developed intelligent animals in the past, what could they do? The conditions are now too severe for them. Unless they had reached very high in science, indeed—as high or higher than Murashema, the growing severity of conditions would debase them again. Evolution works backward as well as forward under improper conditions. . . . That is, not backward, but where there is one paramount necessity, like protection from cold, evolution abandons ground it has won, and concentrates everything on meeting it. I doubt if even we on Murashema could meet conditions so severe as on your Mars."

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*Schierstedt's reasoning about their smooth start from Mercury was based on the wrong premises. As the planet is so much smaller than either the earth or Venus, it would require far less power for a space ship to escape its predominating gravitational attraction, and naturally, the less power applied, the smoother the start would be.

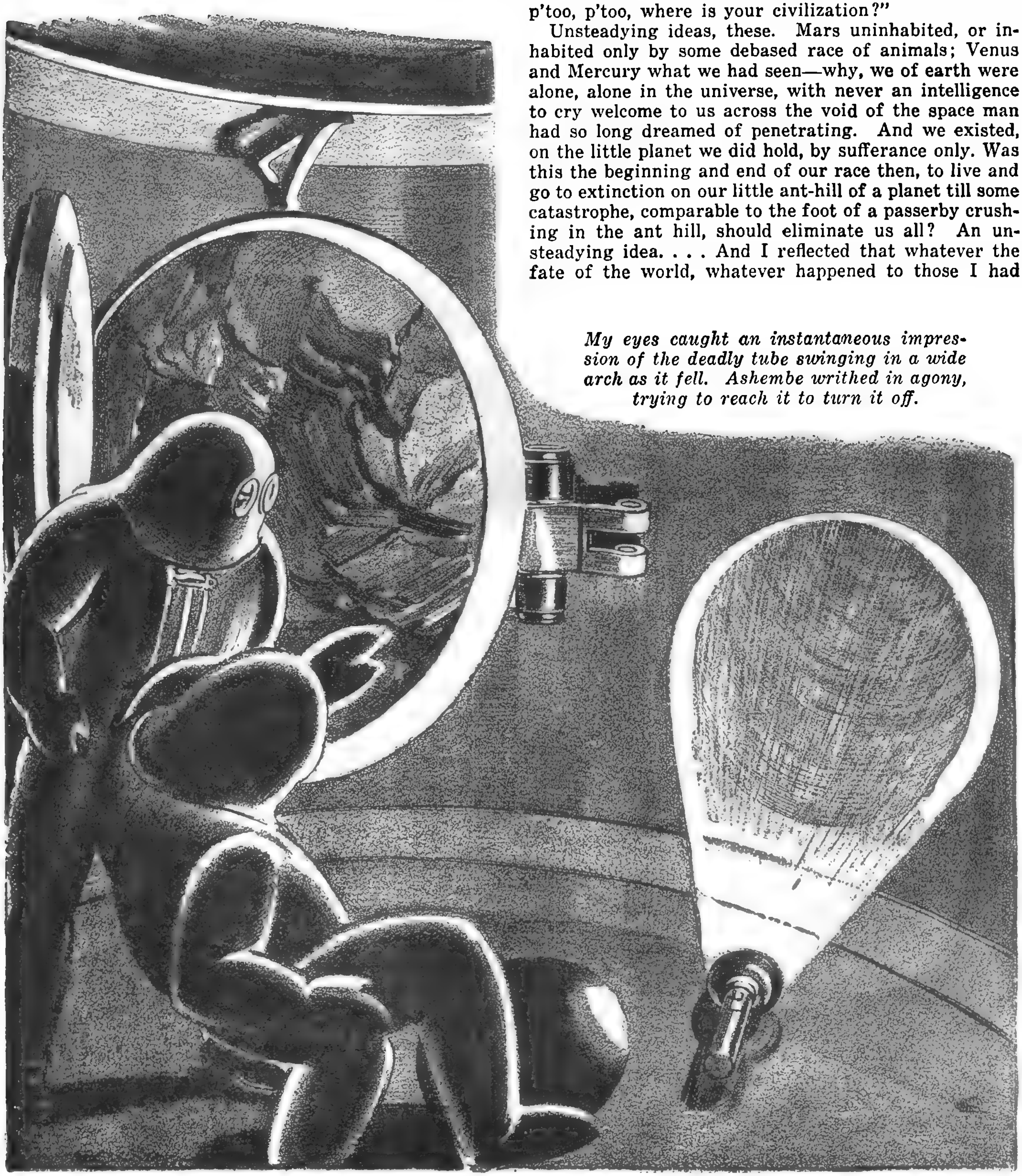
*See "Civilization and Climate," by Professor Ellsworth Huntington of Yale, in which this idea has already been developed by an earth scientist.

"But don't severe conditions weed out the unfit and keep the higher types alive? Our scientists believe this."

"Ah, such is true, but it has its limits. When the conditions are too severe. . . . Attend, look at the conditions of your Eskimos, or the negroes of your central Africa. Conditions are so severe that in the second case they place a premium on laziness, men who are energetic and active and intelligent are weeded out, wasted out by their own exertions. Among your Eskimos there is a similar case. The man who is contemplative, philosophical, the inventor and true scientist is weeded out, because he does not get enough to eat. Every Eskimo must spend his whole time in the search for food. I know this.

"Once more, attend, my friend. If you could transport from your planet a hundred or a thousand people to Mars, even in the present state of your science, they would either become debased to lower than your Eskimos or else become extinct. The evolution of your science is not yet great enough to control conditions of living on a planet. You exist on your earth on . . . what do you say? . . . sufferance. Only because the conditions are favorable. A few more degrees of heat or cold and p'too, p'too, where is your civilization?"

Unsteadying ideas, these. Mars uninhabited, or inhabited only by some debased race of animals; Venus and Mercury what we had seen—why, we of earth were alone, alone in the universe, with never an intelligence to cry welcome to us across the void of the space man had so long dreamed of penetrating. And we existed, on the little planet we did hold, by sufferance only. Was this the beginning and end of our race then, to live and go to extinction on our little ant-hill of a planet till some catastrophe, comparable to the foot of a passerby crushing in the ant hill, should eliminate us all? An unsteadying idea. . . . And I reflected that whatever the fate of the world, whatever happened to those I had



My eyes caught an instantaneous impression of the deadly tube swinging in a wide arch as it fell. Ashembe writhed in agony, trying to reach it to turn it off.

left behind with their futile little wars and loves and ambitions of the ant-hill, I was no longer of them. Of all the people of the world that I, Alvin Schierstedt, bond salesman, the most preoccupied with my grain of sand of all the ants, should succeed where Alexander had failed and be setting forth to conquer new worlds beyond the bounds of solar space! It was too ridiculous. . . . I laughed.

Another week saw us well past Mars, gathering speed as we gained distance from the sun, but still so far under the influence of its gravitation that we seemed to be headed upward toward the zenith, with the floor of the car beneath our feet. I asked Ashembe how it was that we had not experienced the opposite effect while traveling toward the sun—in other words, why the point of our projectile had not seemed the base? His only answer was that there were opposing forces acting in opposite directions—a statement which, whether correctly or incorrectly, I took to mean that the force created by the emanation from the motors at the base had been acting in the opposite direction to the force of the sun's pull, whereas at present they were both acting in the same direction, giving us a sensation, however tenuous, of weight and solidity.*

MARS whirled away behind us, the lines of the "canals" standing out clear and green through the thin atmosphere against the ruddy brilliance of the rest of the planet as we passed. Seen from near at hand they are far from being the sharp lines earthly observers report. Rather they are little interlocking congeries of dots, wandering at random about the surface of the planet. They have no great regularity or sequence; nothing but oases in the vast chilly desert of the planet, as Ashembe explained. Oases fed by underground springs, which in turn are fed by the melting polar caps in spring and autumn, which communicate their waters through reservoirs to be drawn up to feed the lush, soft vegetation that grows round each. "I have visited two such planets," my companion assured me. "Very unpleasant."

It was the very next day after we had passed Mars that we nearly came upon disaster. I had been growing used to the gradual sensation of decreasing weight, the slow return to the condition of our first leap from the earth when we felt so light and disembodied, and must needs hold on here and there as we climbed about the car with effortless ease. It was about three o'clock when I noticed a new sensation, a feeling of gravitation toward a point somewhere near the top of the car. It was so slight as to be almost unnoticeable, and Ashembe, as usual, busily at work at the base, did not notice it.

It was so slight that I would have paid no attention to it myself but for the silver quarter—a now-useless piece of United States coinage which had rattled from my pocket to the bottom of the Shoraru as we left Mercury. I had nothing in particular to do, so I was watching Ashembe. Out of the tail of my eye I caught sight of the coin. It was moving, sliding gently along the side of the Shoraru, with a motion just rapid enough to be visible, toward the top and side of the car.

Urged by curiosity as to what had caused this effect, I handed myself along to the screens. The one directly over the point where the gravitational force seemed to center was that which had been burned out on Mercury; I could not make it work. The next screen showed nothing but the usual assortment of stars and looming large, though still in the distance, a bright, round object that I took to be a planet. Wondering whether it were Jupiter or Saturn, I kept the screen on, examining it closely for the whirling rings one always sees pictured as Saturn's distinguishing feature.

Suddenly, at the edge of the circular view plate, a bulkier, nearer object obtruded itself. I looked—and saw a great, jagged tongue of rock, white with the light of the sun, which grew closer with appalling rapidity.

"Ashembe!" I called, in sudden terror. "We're running into something!"

In what seemed a single leap, he was at my side. One glance was sufficient. "Botan!" he cried. "Turn off basal motors, with speed!" and he bent to the motor at the prow, switching it full on on the instant.

It seemed an age before I could reach the keys of the base motors, and another before I got them turned off. There was a swift, sickening change in the center of gravity of the Shoraru, and I tumbled flat on my stomach.

Would we make it? I managed to crawl along the side of the car and glance through the screen over which my companion hung in breathless expectancy. It revealed a mountain of rock, shot with great black shadows where peaks held the sun, filling the whole plane visible from the screen. Across it ran the spray of sparks from the motor. Nearer and nearer it came, but as it grew, our progress became perceptibly slower, though still so rapid that we might hit it at any moment.

One more glance and Ashembe was off, clambering up to the base of the car, where he began to turn on motors again to swing us off to one side. Would we make it? I glanced at him. He elevated his shoulders to indicate that he had done everything possible—the event was on the knees of the gods.

The details of the rock grew clearer and more obvious. We were surely going to hit it. I averted my eyes, the suspense was unbearable. Then came a rumble of sound from outside the car, a portentous scratching, and when I looked again it was at the impassive star-strewn background of night. We had scraped, but cleared, the menacing shape. At the base of the car, which the changed plane of gravity had once more made the bottom, Ashembe was moving his feet in a little dance of delight.

CHAPTER XXI

"WHAT was it?" I asked, when I had recovered myself enough to speak.

"One of the asteroids of your system," he answered. "I should have remembered. The fault is mine. From now on we must keep the peak screens on, and one of us must keep guard. I had forgotten that your solar system contained so many of these objects."

Another thought struck me. "What about meteorites?" I asked. "At the speed we're going, wouldn't it wreck us to run into one?"

"If very large it might wreck the Shoraru," he admitted. "But the large bodies can be avoided by steering, and so strong is the exterior material and concentric shells of this Shoraru that smaller meteorites would cause litle damage. Moreover, there is a high statistical improbability of our striking either a large or a small one. . . . This asteroid is very large and possessed some gravitational attraction. Moreover, we were pointed almost directly at it—most unlikely event."

I murmured a hope that no more unlikely events would occur.

"Still more unlikely at the present time," he remarked, cheerfully. "Our change in direction will carry us out of the plane of the ecliptic. Perceive through the basal screen."

Following his direction, I turned it on, and saw the sun not directly at our feet as it had seemed before, but just visible at one edge of the picture in the screen.

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*Our space traveler seems a trifle muddled again.

"You comprehend?" asked Ashembe. "All your planets lie in practically the same plane which your scientists call the ecliptic. We have been journeying along this plane because it was the most rapid direct course away from your sun. But now we have changed direction and fly off on an angle."

We were bound out and away, not merely from the sun, but from the whole solar system, angling off in some direction unknown.

"But is this the direction you want to go?" I asked, and then another thought following the first, "Where is Murashema, anyway?"

"It is a long explanation," said Ashembe. "Attend. Your scientists call the groups of stars by names, the very absurd designation, convenient only for semi-savage states without unity of language. It is backward.

"According to your absurd designation, Murashema lies in the star constellation Cassiopeia, being the sun known to your astronomers as Mu Cassiopeiae. We are now pointed in almost exactly opposite direction toward the constellation known by your astronomers by name Draco. This means that we will have to turn back after certain periods of this journey and pass by your sun again. But we will make the passage at a very long distance from your sun, thereby avoiding its attractive influence and being able to make greater speed.

"You will comprehend that Murashema is comparatively nearby your sun—one of your nearest stars, as your sun, which we call Amba 321 Ren 16 Ora 248 is one of our nearest stars. Nevertheless, it is at long distance. Light travels between our two systems in twenty-five years and one month. To cover this distance from our system to yours and back again for the purpose of obtaining valuable mercury would take about an ordinary lifetime of a man on your planet and about half an ordinary lifetime of one on ours, providing travel was made with speed of light.

"The case is more difficult because of the motions of our respective stars, which are receding from each other at 97 kilometers per second and traveling at right angles to each other at 137 kilometers per second, thus continually creating greater distance.

"Thanks to the high velocity coefficient of the pleci motors, however, we can reach higher speeds than light while in empty space—that is, in a space where we do not fall under the gravitational influence of any body. A body in a vacuum, that is, without the limits of gravitational attraction from anything, will travel with uniform speed, such as originally imparted to it for an indefinite period by means of inertia. You know this? It is in the mathematical book you have been studying.

"To this inertia, which will keep us constantly traveling, the pleci motors add a constant acceleration. You perceive that if we left your earth traveling at one kilometer per hour and all gravitational influence were removed, we would continue to travel at this speed forever, provided there were no gravitation. But if the motor is turned on at a speed sufficient to maintain our progress at one kilometer per hour, inertia would keep us at a speed of one kilometer per hour, while the additional speed of the motor would be applied to acceleration. Thus in the second hour, we would have our speed of one kilometer per hour from inertia plus our speed of one kilometer per hour from the motor, that is, two kilometers per hour. In the third hour the speed would be three kilometers per hour, *et cetera*, constantly gaining acceleration.

"However, at the region where your sun supplies gravitational attraction, this is not so simple. If we were to turn off the motors now, we would become a comet revolving around your sun in a regular cometic orbit, though at the very high speed. Unfortunately, that is what has happened to many explorers from Murashema, particularly in the early days of exploring. Their Shoraru were not furnished with sufficient fuel to carry them to their destination or upon arrival at the destination they were unable to find suitable type 'tho', 'ora' or 'kain' planets to effect landings upon. Therefore, fuel becoming exhausted, they became comets and wander about various suns forever. I was fortunate in finding your planet——"

"Have any of your explorers ever returned to Murashema before?" I interrupted.

"Several. None with mercury, however. This is the highly rare metal in the planets of space. Many of our explorers also did not go to look for it but to investigate phenomena of various suns at close hand. We have extremely interesting exhibits in our museum laboratories on Murashema with regard to various types of suns. . . . But you throw me away. I was to say that it is not so simple to accelerate speed in drawing away from a sun. Space navigation is a high art.

"If too much power is given to the motors early in the course, the gravitational attraction of the sun, pulling in opposition to it, causes crushing of the explorer. If the explorer waits until too far out from a sun to rectify his direction, he loses the valuable fulcrum of its gravitational attraction, and it becomes extremely difficult to change direction, owing to his high velocity. In such case, thanks to inertia and the difficulty of overcoming it, he is sometimes unable to turn before he has gone too far from where he wishes to arrive. This causes him to take too long in covering distances, and he dies of lack of food or other causes before he can turn back. At other times, by not rectifying his direction soon enough, he is precipitated into the attraction of some other sun and has it all to do over again with much complication."

"Good Heavens!" I said. "Then when you start out on a trip you never know where you're going to wind up."

"True. Space navigation is difficult art. Only certain of us on Murashema are allowed to attempt it. Navigating among the planets of one system—that is easy, as you have perceived, provided you do not run too close to the sun. But to navigate the space between suns, that is difficult."

"What speed are we making now and how soon will we turn toward your Murashema?"

Ashembe glanced at the note tablet on which he had been setting down the results of his calculations. "We now travel at sixty kilometers per second," he announced. "We lost much speed by reason of the close approach to that asteroid, and it will take us time to work up to high speed again. I am anxious to arrive at the edge of your sun's attraction. We will soon work up to one hundred kilometers per second, and we are now in the region of your planet Jupiter. I calculate that when we arrive just beyond the radius of your planet Uranus, we will be far enough from your sun's gravitational attraction to make the turn toward Murashema and put on the full power of the motors. That will be in . . ." he fumbled with the calculating machine, which emitted a series of clicks, ". . . in about two hundred seventy or more of your days—about nine of your months."

APPALLING prospect nine months of travel through the void toward nothing at all, merely to reach a point where we could turn around and begin our real journey. I murmured something inarticulate.

"Far from some difficult as it appears," said Ashembe, guessing at my thought. "After we once turn around toward Murashema, speed will rapidly become high. Perceive by what I have told you. When we turn on full power of motors, this is sufficient to represent an acceleration of 200 kilometers per second. In twenty-five minutes, we will arrive at the speed of light. In seven hours from that time, we will arrive at sixteen times the speed of light. That is the highest speed we dare to obtain even in empty space as gravitational attraction of unexpected dark bodies might draw us from the course without opportunity for rectification, and at speed beyond this, rectification would become impossible.

"If we maintained the above speed, would reach Murashema in one year eight months of your time. It will take slightly longer, as when we arrive at such speed we will very soon be necessary to produce slow negative acceleration to arrive within the gravitational field of Murashema at proper speed for navigating interplanetary space."

He looked at me and perceived that further explanations were needed.

"When we turn toward Murashema," he continued, "we must point the Shoraru directly at the same sun. You perceive? Our planet being dark and therefore not visible, all we can do at this extreme distance is to point at the sun. Very good, then. If we approach the sun of Murashema at extreme speed of sixteen times speed of light, what then? Add this to gravitational attraction, and we would charge right into the sun with crash. Therefore we must slow down soon after we reach the peak of speed, allowing us to make the proper turn in direction when we reach the Murashema system. Now do you perceive?"

It was all very complicated. I never did have a good head for mathematics and the abstract (and abstruse) sciences that are based upon it. If he could only explain the whole business simply to me, I thought. One thing did stick in my gullet, however, and that was the statement that it would take another nine months or so to reach the limits of the solar system and two years beyond that to reach Murashema. Three years in that miserable little world of a Shoraru with nothing to do! Good Lord what a prospect![*]

CHAPTER XXII

IN the days and months that followed, however, I discovered unplumbed possibilities of occupation within myself. Without any natural capacity for mathematics, I studied the subject as a matter of necessity and to keep from going mad. To my surprise, I found I was making considerable progress. Long before we reached Murashema I was able to make independent checks on some of Ashembe's calculations, much to the delight of my companion.

During those early days of our progress through the solar system, Ashembe initiated me more and more deeply into the mysteries of the three dimensional chess he had shown me back at Joyous Gard . . .[†]

After the early stages, in which Ashembe was kept constantly warning me against this or that indiscretion, I began to hold my own to a certain extent, even in winning an occasional victory. But these, I regret to say, were usually in cases where my defense proved unexpectedly stubborn, and Ashembe, losing interest. would deliberately make injudicious moves to get the thing over with. I always had the sensation of a child who has persuaded a kind-hearted adult to engage in a game of hide-and-seek. The adult plays readily enough but allows himself to be caught, so as not to spoil the youngster's pleasure.

Ashembe, of course, had the tensal helmet. Occasionally he would have me read to him from some of the mathematical books, but more often he would put on the helmet, touch some of the keys, and drop off to sleep. He informed me that in addition to being an educational device, it was a radio receiving set of a power higher than anything we had on earth, and by manipulating it properly, he was able to tune in on broadcasts from Murashema, although he could not transmit messages. The transmission apparatus was one of the things he had intended to build back at Joyous Gard, but he had been deprived of any such possibility by the sudden raid of the police.

My own distrust of the apparatus probably kept me from much knowledge that would have been useful on our journey and afterward. But to bolster that distrust, I had Ashembe's hesitancy to let me use the instrument. "I am not certain of your mental quality," he told me frankly. "At some times you have the good mind, at others you appear more like the mentality of a low manual laborer. If your mentality is not actually high, the tensal will do you more harm than otherwise by abandoning part of the control of your mind. It is as I have said of those with small criminal tendencies on Murashema. If much knowledge were stuffed into your head by means of the tensal, you might become nothing but manual laborer with plenty of useless knowledge. You are a special case, unlike our own people. I would not really recommend it, although you may attempt it if you desire."

And so we rushed onward through space to the point where we would turn back and make for Murashema at a speed impossible for the ordinary man even to imagine. Saturn was on the other side of the sun[*] just double the radius of its orbit distant from us and my hope of seeing at close range the rings one sees in every picture of the planet was vain. In fact, we never saw it at all till we were so far out that the sun itself had sunk to the size of a planet and then only after I had expressed a desire to see it and Ashembe made a painstaking search for it with his telescope. By that time the ringed planet was barely perceptible as a pale twinkling star among the rest.

But we passed Uranus fairly close; closer at least than any man of earth has ever passed it, though the angle with the ecliptic at which we were traveling caused it to appear below and behind us at the very moment when we made the great turn. There it lay, clearly bigger and brighter than any of the stars, a sea-green demi-lune of light, magnified to impressive size in the telescope, with the two inner moons close by like tugs around an ocean liner. The color of the huge planet pulsated and moved as though internal convulsions of intense fierceness were agitating it. Ashembe shivered a little as he pointed it out.

"A dead world," he pronounced. "You see the movement upon the planetary surface? At the temperature of this planet all known substances are at least liquids, even hydrogen and pleci, and there is constant chemical interchange between substances that are chemically inert gases in our worlds. You know, of course, that advances in temperature up to a certain time promote chemical activity, but soon arrive at the point where chemical combinations will not form, as in the suns?"

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[*] To persons of a scientific turn of mind, it will always be a matter of regret that Sehierstedt was so much concerned with his precious mental reactions and so little concerned with the mathematical and physical details of the trip. If he had only been a scientist!

His whole explanation of the trip flies in the face of modern scientific theory. According to Einstein (and so far, we have no physicist who has plumbed such matters more deeply) it would be quite impossible for the car to attain a speed sixteen times the speed of light. The speed of light is of the order of 186,000 miles per second; and nothing, on the Einstein theory, can exceed this speed. It is a more or less arbitrary limit to cosmical velocities.

But it is only fair to say that Murasheman physical science appears to be beyond ours. Einstein's predictions, marvelously as they have been borne out so far, are theoretical only; no man from this earth has succeeded in navigating space and applying to them the empirical test. And even on Einstein's own theory a body in free space would maintain a uniform velocity through inertia. If Schierstedt is right in setting down the influence of acceleration, and if the acceleration could be applied in the manner described (according to earthly science it could not) it is quite possible that the result might be as Schierstedt has stated. In this case, the extreme speeds mentioned by him are perfectly explicable.

At all events, the whole matter is one worthy the attention of physical scientists, and is recommended to their attention.

[†] There follows a lengthy description of the game (which Schierstedt had already described before) and some notes on how to play it, with samples of illustrative games. As these are of no possible interest, we have taken the liberty of omitting them in this published version of the manuscript.

[*] It is possible to check the positions of the planets in their orbits (with the exception of Jupiter, which he does not mention) at the time Schierstedt says he passed them. Astronomical calculations show that a couple of months after he disappeared from the cottage on Sunderland Lake, they were exactly in the positions he mentions—a valuable piece of evidence as to the veracity of the manuscript.

I said I had heard something of the kind.

"Good, then, the gases of our atmospheres at the temperatures of our worlds are at temperatures too high to permit of chemical combination except in cases of unusual excitement. Upon this planet (he indicated the careening ball of sea-green) all the gases have sunk to temperatures where chemical combinations are normally possible. Activity is intense."*

"But," I asked, "might there not be forms of life suited to such conditions?"

"A thought," he said, "that has occurred to our philosophers, and promotes discussion, as does also the question of whether there are forms of life able to exist at high temperatures like those of the suns. But if there are such forms of life, they are imperceptible to any of our senses. We cannot ever hold communication with them. So, for practical purposes they do not exist. They may be there but our imagination cannot even picture what forms of life could exist under such conditions. A narrow belt of temperature holds all of life as we know."

I do not remember the rest of this conversation on life exactly, and my diary for the date is silent on the point. The reason is, no doubt, that it was that same afternoon that Ashembe, after making careful observations from all the screens, shut off the power at the base of the car except for one motor, which was turned to its full strength, the motor at the bow being turned on simultaneously.

Through the screens I watched the stars, expecting to see them swing in a slow, wide arc as our craft swung around and squared away for the long trip to Murashema. On the contrary there was no visible change. The sparks from the motor here and there blotted out the pattern, but in general form it remained the same and no effect of motion was visible.

It was not, indeed, till several hours later, when I had returned from a nap, that I could see any change at all, and then only a tiny one—less than takes place in the heavens during a single hour of night on earth. A little worry ran around in my mind. "Aren't we making the turn?" I asked.

"Certainly," was Ashembe's cheerful reply. "Do you not notice the difference? We are going at high speed, but we have already swung three degrees, thirty-six minutes of the arc. That is quite sufficient speed of turning to carry us in the correct direction."

With this encouraging comment, he plunged back again into the maze of observational instruments and calculating machines, and for the whole of the next six or seven days I could draw little from him. The base motor kept steadily on; the bow motor continued to cast its golden veil of sparks across the stars, and we steadily continued the great swing that was to take us back across the whole solar system toward Murashema. My companion took no sleep at all; ate hardly anything, and seemed to be keeping himself going by means of stimulants.

It was not until January 6, Year 2, that he at last laid down his calculating machine with a sigh, and turned the rest of the base motors on, one by one, shutting off the one at the bow that had been the brake on our progress. "All is complete for the present," he said, and then, pointing to the picture of a bright and brilliant star near the base of one of the bow screens, asked, "Do you know what that star is?"

There was nothing remarkable about it except its unusual brightness. "Neptune?" I guessed, "or Sirius?"

"Not either. That same star is your sun."

I gave a cry of surprise. "So far away already?"

"Ah, you forget. We have now practically escaped from its gravitational attraction. Your sun moves through space at a rapid rate. We also now move through space at a rapid rate in a direction nearly opposite. Therefore we achieve a great distance of separation."

As he spoke, he was handing himself down the racks to the base of the Shoraru and now, with a word of farewell, he left me in charge while he turned in for much needed sleep. We were launched at last on the last wilderness of interstellar space, off on a journey that would make the tremendous leap from the earth to Venus no more than the casual crossing of a city street.

CHAPTER XXIII

THE months that followed were divided almost evenly between periods of intense labor and periods of intense boredom. Every ten hours we took observations (I soon learned to assist Ashembe in this work), made calculations of speed, distance and direction, and translated them into action by cutting off the power of the motors on this side or that.

This done (it was far more arduous than it sounds) there was nothing left but study or amusement with Ashembe's three-dimensional chess-board. More and more I came to wonder at his mental equipment. For something over two years he had been shut up alone in a narrow car the duplicate of this, practically without occupation, on a voyage not toward his home, but to an unknown destination, whose terrors he could only guess at, and from which he ran about an even chance of never returning at all. He had come through that ordeal with sanity and cheerfulness unimpaired, and now here he was debonair and happy, attempting a second such leap. Surely, I thought, a people who could produce such men must possess resources superior to ours, not only in scientific attainments, but in the important qualities of self-discipline that make these attainments worth while. I did not know then what I have since discovered of the Spartan rigors of Murasheman training for this work.

Some time after we made the turn, Ashembe announced that as the fuel in the outer shell was exhausted, he would cut it loose. I wondered how, but said nothing on the subject as he scrambled into his atotta suit, and taking the destructive flash, let himself through the inner compartments. Within an hour he was back, bidding me look through the screen at the base.

I saw a dark object of uncertain shape fitfully outlined against the stars behind us, following on with a velocity but little less than our own.

"The outer shell," I was told. "It was only a minor trouble to cut it loose. Consider. There was nothing to hinder. In spite of speed there is no wind at the outside of the Shoraru, since there is no atmosphere. We are removed from all gravitational influences, therefore there was no necessity for clinging to any object.* That is, the only gravitational influence is that of the Shoraru. It required care on my part not to make violent motions that would carry me free from it, since the gravitation of so small a body is very less, but that was all. I simply cut loose the supports of the outer shell and then carved it into convenient sections for slipping off."

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*Logical, but not heretofore known to chemistry. Professor Anschutz of the Museum staff is now making chemical experiments with liquefied gases at low temperatures in an effort to verify this statement.

*This would only be true (on Schierstedt's own showing) if the power of the space car had been turned off during the process, thus preventing it from accelerating and permitting all objects in connection with it to move at the same speed. But from the rest of the description it would appear that this had been done, although Schierstedt does not say so.

"But why cut it loose at all?" I asked, "I should think it would be useful as a protection and to give us more rooms even after the fuel was exhausted."

"We have to use a certain amount of power of the motors to heat such extra space," said he. "That is one reason—economy of motor power. But the more serious reason is that when entering the atmosphere of Murashema or another planet at high speeds, the shells tend to fuse by the heat of friction with the atmosphere and make it exceedingly difficult to escape from the interior of the Shoraru without damaging its remaining contents."

"Oh . . ." I said, vaguely. "But what makes it follow us?"

"Simple. Inertia. The discarded outer shell is in motion as we are in motion. There is no resistant medium. Consequently it continues in motion at the same speed we were making when it was cut loose. As we have the motors in operation, our acceleration enables us to outstrip it."

The acceleration by this time was approaching the dizzy heights predicted by Ashembe at the beginning of the trip, and one day, after making his observations, he stepped briskly to the motors at the base of the projectile and turned them all off, announcing that we had reached a speed sufficient to carry us the rest of the way without further acceleration.

In those hours of spinning down the grooves of space, a miniature universe in ourselves, motorless and silent, I learned how false were all my ideas of interstellar travel. In the scientific romances of Jules Verne, in the lunary adventure tales of H. G. Wells and of their successors, it is only sufficient for the painstaking scientist to construct a space car. As if by magic he is whisked from one world to another and plunges at once into a set of new and thrilling adventures. I have never found in one of them a word of the intense boredom of such travel, besides which the accumulated boredoms of the earth are as nothing.

In the romances, the space traveller passes his time agreeably enough. He is entertained by the glittering conversation of his companions, by dazzling scientific explanations of what he had thought impossible, by sights and sounds and wonders of the universe beyond the earth. (An exceptionally crowded universe it is, too, in the books.) Forgive me for insisting upon the point, but nothing could be more inaccurate. I set it down because the point deserves emphasis.

I have recorded here practically every word of importance that passed between us, omitting only such matters as "Please pass some more of that green stuff. It isn't bad," and "Well, p equals 4.74 times v prime minus v, divided by V sine lamba, doesn't it?" Aside from these minutia of our everyday life and the conversation that centered around cubical chess, there was absolutely nothing to talk about. Subjects for conversation were as lacking as they would be in a shack in the Arctic Circle, and talk as infrequent. One is almost totally thrown in upon one's own resources. Imagine the few scraps of conversation of which I have given examples, lasting two human beings for the whole duration of three years!

As for sights and sounds, there were none. The sight of the blazing stars on their velvet background, so impressive when first seen on the voyage between the earth and Venus, had become a monotony to which I paid no more attention than did Ashembe. We were now long since beyond the system of any sun; there was no remotest possibility of collision with planet or meteor; in fact, we reached the stage where we would have welcomed the spice of danger as a relief from the all-embracing ennui of existence in that circular apartment of seven rooms with its soft lights and eternal sameness.

And for my part, you may add to this an intense feeling of futility. Let any man go out every night and gaze upon the stars till he comes to know them intimately. Let him speak to but one companion during all those nights; and a sense of his own infinite smallness and unimportance cannot fail to be borne in upon him. Yet all about him will be the influences and contacts which we altogether lacked. The warm press of earth will be under his feet, the comforting blanket of the atmosphere with its pennants of cloud will remind him that the little concerns of his daily life, like the weather are, after all, important. For us there was no such resource; we were alone in a tremendous emptiness, and the only thing we could feel was that giddy sensation of the loss of weight. It seemed almost useless to go on.

ALL things have an end, however, even interstellar travel. The screens at the bow began to show the star toward which we were traveling larger and larger on our sight till it stood out sharp and bold, rivalled only in brightness by great glowing Deneb on the one side and Capella on the other. Now there came a day when Ashembe finished his observations by turning on the bow motor, checking down our run before we should enter the system of Murashema.

As we raced on, with the new sun still no more than a point of light, it grew to be the largest point of light in the skies, and then, one day, when I was at the screens, I saw the brilliance of the Milky Way blotted out here and there by some dark object, past which we flashed in a second.

It was just touch and go, and when I called Ashembe, the black mass, whatever it might be, was already far astern. "A comet," he diagnosed it. "One of the few outlying comets of our system. Probably at long distance. We would need observation to know whether it was going from the sun or returning. All comets return,* but some of them, as in your system at very long intervals—seven hundred years, even. They are nothing—collections of rocks and dust with gases held in solution in them which are excited as they approach the sun and take light from it. We have very few left. They tend to disappear into meteor showers or to be attracted into the larger planets as time continues and our sun is much older than yours."

And now, as we drew in upon the Murasheman sun, our calculations showed that though our velocity was only a little short of that of light itself, the bow motor was cutting it down at the rate of twenty kilometers every second, and Ashembe had finally to turn it off lest we approach too slowly.

It was July of my Year 3 when we really began to drift into the outer limits of the system of Murashema, with all motors silent, swinging along at a furious pace, with our inertia to drive us. I remember well my first view of a Murasheman planet, gained through the bow screens as we bore down upon it from a distance; a round, green object like some huge melon, larger and darker than was Uranus, when we had passed it on our outward voyage from the earth.

"Radil," Ashembe called it, as we made our observations and by means of it calculated our velocity and direction more closely than we could by using the stars. They showed that we were still moving too rapidly—or perhaps that the Murasheman sun had begun to exercise some gravitational pull, for immediately after the observation we had to turn on the bow motor again and check down our speed.

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*If true, an astronomical point of some importance. The best astronomers have hitherto been uncertain whether some comets were not swinging in hyperbolic orbits which would carry them clean away from solar system to wander forever in space. The earth is so close to the sun that it is impossible to determine, during the short time a comet is visible whether its orbit is an oval, an ellipse, a parabola or a hyperbola.

Immense though the distances are in the system, as in ours, they are as choked with the chances of collision as a crowded street compared with the blank space through which we had been traveling. In September we passed a second planet, larger than Radil, lighter in color, and attended by a caracolling flock of moons of all sizes; at least eleven or twelve of them there must have been, some small and barren, like Mercury, showing their craggy character in the faint light, some larger and, like the planet itself, lost in sea-green obscurity.

October, November and December whirled by as we passed slowly through the Murasheman system, losing speed against the day of our landing. Twice more we passed planets, one a large, cold and lifeless orb like Radil of the outer planets or our own Uranus, and the other, smaller and more like the earth in size and make-up, but long since sunk in the death-silence that ultimately awaits every world.

"It is the outermost of the once-habitable planets," he said. "About as far from our sun as your Jupiter. But it is useless to do with. Our explorers have encountered it much; even I have been there. Long ago it lost nearly all atmosphere, and liquids on its surface are frozen. It contained life once, however. We find many fossils and some few ruins. It is a planet of the otherwise proper type for the development of men, but unfortunately too far away from the sun.

"Development on this planet never reached beyond an early stage. The early stages of development, as your scientists know, take the longest. The stage of protozoan development takes as long as the rest put together; then the stage of invertebrate development takes as long as all the stages that follow it put together, and so on. It is not exact enough to state a law about, but that is the approximate relation.

"Well, then, on this planet it did not get high enough in the scale of development before it became too cold to develop further. Evolution was turned in on itself. Man developed, but only became semi-intelligent."

What a huge amount of wastage in the universe, I thought. How many efforts go wrong—and all to produce what? Surely not little bifurcated, hairy radishes. But what of it, anyway? One becomes a pessimist or a philosopher after three years' journey in space and the latter is the easier rôle to maintain.

CHAPTER XXIV

MURASHEMA I first saw as a silver crescent early in April of the year 4; silver on black. It was pointed out to me by Ashembe with the nearest approach to emotion I ever saw him show. Not that he was unsympathetic, but chiefly he seemed amused with things of earth that he was brought in contact with. He was astonished at this thing or that, but it was the astonishment of an explorer at the barbarous customs of the savages. Underneath, I always felt that he was mocking us.

We spoke but little during the last few weeks of the journey. The accumulated discomforts and nostalgia of our interstellar journey, held in check at first by the novelty of the experience, broke in upon me. All my pleasure in the strangeness of the journey, all sense of triumph over the forces of an illimitable nature had passed. I became silent and almost savage, longing for nothing so much as solid ground beneath my feet, and a perspective of hard, palpable skyscrapers around a sunlit horizon. And blue sky! Ask a prisoner of any sort what he misses most—his answer will be as mine—blue sky. . . . It is not at all difficult to understand the titanic sprees with which sailors are credited. I suppose they must have much the same feeling toward the end of a long voyage.

But I am grousing. The tale, the tale! . . .

We plunged along now with the bow motor always and one of those at the base generally going, correcting our course by small degrees to this side or that to bring the space ship to Murashema at the right point.

To reduce the speed at which we would enter the planet's atmosphere, our course had been turned so that we swung in behind it along the line of its orbit, so we should overtake it. Even then, as we bore down on this new world below us, we could detect a quickening of motion as we came within the predominating influence of the planet's gravity.* Only half of it was in the light from our point of view, and the light seemed less vigorous and redder than that of our own sun, though the computations, which I was by now competent to make, showed us that Murashema lay nearer its sun than the earth does to ours. Taken by and large, the planet also showed considerably less space given to ocean and considerably more of the yellow-brown streakings that Ashembe had taught me were due to deserts.

A few hours more and the planet had lost the form of a ball; the horizon was rising about us, and the edge of light where the day struck drawing away from us. The bow motor had been turned to nearly full speed to soften the inevitable shock of the fall to Murashema's surface, and now cast a huge plume of sparkling light across the picture on the screen. A little further and the sparks changed color as we penetrated the atmosphere, and then, abruptly, they died away and fell altogether silent. Ashembe looked at me. "Out of fuel," was his brief comment. We had made Murashema, but with nothing to spare.

Our penetration of the denser layers of air announced itself by a loud hissing sound on the outside and a series of quick, disturbing jerks. The point of the projectile had long since become our floor as we entered Murashema's gravitational field, but the effect was now redoubled, and for the first time in many months I felt that there was something solid beneath my feet. The jerking increased; so did the hissing from the outside of the car, and Ashembe looked anxiously about him. In spite of the repeated layers of atotta that lined the machine and its chambered construction, it began to grow warm within.

I went to turn on the screen, but my companion stopped me. "Useless," he said. "The heat of passage through this atmosphere has already sufficiently corroded the outer layers to make vision impossible." I wondered how much further we would have to go before landing, and as I wondered, with a shock that threw me half way up the car and back again with a savage jounce, we struck.

When I had picked myself up and a cursory examination showed that none of my bruises were of a serious character, I began at once to climb toward what had been the base of the car with the idea of getting out at once. Ashembe restrained me with the comment that I would lose no more than my life by emerging in the present heated state of the exterior, and I desisted. A moment later there was a violent explosion.

"What is it?"

"Part of one of the outer shells," said Ashembe. "Under the extreme heat and pressure of progress through the atmosphere, the outer shells melt and while in this state absorb gases. The gases are now emitted with violence."

So, unwillingly on my part, and calmly on his, we made our beds in the central chamber—the first time we had done so. Like a child on Christmas morn, I found difficulty in going to sleep, and when I did, dreamed lively dreams that kept me alternately waking and dozing all night. Oh, to be out in the air again! When I finally could sleep no more, I sat up. Ashembe was sitting beside me, but my watch showed that only five hours had passed.

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*Gravity seems about the only scientific idea Schierstedt's head was capable of holding—probably because it is the simplest of physical phenomena for one who is neither by training nor disposition a scientist. The non-scientific reader of this manuscript should beware of ascribing to gravity all the effects Schierstedt does.

"Can we go out now?" I asked. He shook his head, and for another fifteen hours we stood or sat around the interior of the car, avid with excitement, waiting for it to cool enough to permit egress.

At last Ashembe rose, and taking down his atotta suit, began to put it on. "Do we need the suits?" I asked, scrambling into my own, so as not to be left behind.

"Perchance we will need to use the ray for escaping," he answered, "and the heat developed in this small space would be highly discomforting until we succeeded in obtaining egress."

And seizing the instrument mentioned in one hand, he began to climb the racks to the door, with me close behind him. It shot back readily enough, but as we emerged into the second chamber, we saw at once evidences of the terrific forces that had played on our space ship as it rushed through the Murasheman atmosphere. The next door outward sagged to one side as though it had been made of clay and damaged in the making, and all round its edges an ooze of little black bubbles of fused metal had broken through the atotta lining, scorching and searing it where they had passed. Toward the peak of the car (now the bottom) the atotta was everywhere bulged and pitted and in some places burned clean through by fires fiercer than the heat of the sun on Mercury. At one place near the peak, indeed, there was evidently a hole right through the side of the vessel, for clean white sand had poured through the gap into a little cone against the side of the chamber. Most of the wall racks were twisted out of shape by the sagging of the walls and several had parted from their moorings.

TESTING his footing as he went, Ashembe worked his way around the walls without giving a moment's attention to this scene of destruction, and when he reached the point where the door still stood in its distorted frame, began to work on its edges with his flash ray.

A glow of light, like that from an electric welding machine, filled the chamber and a rain of bright sparks ran down. Evidently the atotta lining of the shell was high in resisting power, for it was some moments before Ashembe, working slowly, was able to make even a narrow slit. Perched as I was on one of the racks, I bent forward eagerly to catch my first glimpse of the land of Murashema. I saw—almost nothing. The hot light of the flash blotted out the picture, but in the glimpse I did catch I saw enough to make me think we were among the dunes of some sandy island.

Ten minutes more and the door was free on three sides. Ashembe switched off his flash, made a vain effort to move it, and bent to his work again.

At last he got the thing so loose that it hung only by a thread of metal, and reaching up he gave it a vigorous blow. It fell with a thud outside somewhere, and the opening was immediately blocked by Ashembe's body as he clambered through. I was after him in less time than it takes to tell it.

Once outside, we had a five-foot drop to the ground, Ashembe catching me neatly to break the force of the fall as I made it. Silently we stripped off the atotta suits and then for the first time I was able to look about me.

The ground beneath my feet seemed all sand, in which I sank almost to the ankles, so loose and soft was it. I had been right about the character of the land, if wrong about the location; there was no sign of beach or sea, but we were among sandy dunes on a flat plain, gently rolling away to the distance where there was a vista of purple-hazed hills. All about was a low forest of scrub, just a little taller than a man and appearing very open until one tried to see through it to a distance, when it became evident that the trees stood much closer than they seemed at first. The sand seemed universal—white, soft and fine, and our space ship stood half buried in it.

It was twilight. The whole landscape was suffused by the slow light of dying day, and a monstrous ruddy sun was just sinking from sight behind the range of hills in the distance. I turned round and saw the same landscape of rolling levels and scrub forest, unrelieved, save by the monstrous form of the Shoraru on the other side.

Ashembe stood at gaze with me for a moment. Then, reaching down to the pocket of his atotta suit for the destructive flash, he stepped over to one of the dwarfed trees, and in a moment cut it down. Dragging it back to the car, he set it against the side, and motioning me to come on, said, "Quick. We must return within at once."

"What's the matter?" I asked.

"This is the hunting land," he replied briefly, fixing the point of his improvised ladder in the ground and offering me a hand to help me up.*

CHAPTER XXV

HE shook off my inquiries, hurrying to get into the interior chamber again and snap shut the locks on the door. Then he turned to me.

"This is a hunting ground," he repeated, a bit out of breath. "It is very dangerous and unfortunate that we should land herein."

"Why is it dangerous and why is it unfortunate that we should land here? Wild animals?"

"A few. But these are far from the chief danger. The danger is from men."

"From men! Is your part of this planet at war with the rest, or do you still have savages on Murashema? I should think that with your degree of civilization——"

"Not so. We have no savages. These are the young men in training. The substitute for armed combat. Every explorer has to pass through it as part of his training course. It is an evolutionary process."

I remained dense.

"Attend," said Ashembe patiently. "On your planet you have many different groups of men under different governments, not so? Between these governments there are always wars. This creates tumult and disturbances and kills off many people. Your philosophers recognize that this should not be so and seek to abolish all wars. On this planet we have long ago arrived at this stage. There is only one government and one language; no wars, no, not one."

"Very good for you," said I, "but what has that to do with it?"

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*The reader cannot have failed to notice the general falling off in quality of the writing of this narrative in this chapter. Apparently Schierstedt's diary, which he mentions above, ends here; or perhaps just before this chapter begins.

From this point on there are numerous discrepancies in the narrative, due either to faulty memory, haste in writing or some strong emotion on the part of the writer, a theory which is perfectly explicable in view of the end of the narrative.

In this chapter there is one discrepancy to be noted. Schierstedt has spoken of Ashembe's climbing out and cutting loose one shell from the space ship while in transit; but when they arrive, there is only one shell remaining besides the central chamber. The other was probably cut away during the voyage at some time not mentioned.

The editors also wish to point out that from this point on the handwriting of the original manuscript was particularly bad and occasioned much trouble.

"Permit me to say. You fight your wars with scientific apparatus which is unselective. The best men in your world might as easily be killed in wars as the worst."

"True," I admitted, "and that's what's the matter with war. You don't mean to tell me that you wish to justify it as an institution?"

"No. We know this. However, your people do not carry their knowledge to the logical conclusion in two directions. In the first place, they continue their useless wars. This is very stupid. In the second place, some of your scientists are perturbed about your civilization because of the intrusion of weak elements in your population, and your philosophers also deplore the same. They perceive clearly that there is no evolutionary process in operation as before men became civilized. The worst elements in the people are preserved as well as the best, because of lack of natural selection. In savage states and with animals, any weakness or badness produces its own elimination. A blind animal, for instance, does not live long. A stupid savage does not get enough to eat and is consequently unable to have children because he cannot get a female savage to share his fortune. You follow?"

"Very good, then. You scientists and philosophers know that races can only be kept up or improved through natural selection of some kind. They know evolution does not stand still, and that if your human race does not advance, it must go backward. They comfort themselves with the thought that your people, though they are becoming less strong and able physically, are evolving better brains. Most of them lose sight of the fact that weak brains also must be eliminated by some process of selection, or else civilization will protect weak brains as well as weak bodies and in time crush itself under the overwhelming majority of low intellects.

"Your people thus become deficient in brains as well as develop savage traits of strength, courage and energy. In the lower stages of civilization wars supply an evolutinary process. Only the strong or intelligent can survive through semi-savage or early-civilized wars. But as civilization grows, wars are eliminated or become of the present character of your wars—unselective combats conducted by machinery that have no individual selective value and very little racial selective value.

"We have passed through the similar stages. Our scientists decided that something was necessary to produce an effect of selection, an elimination of the unfit. Hence, we have the hunting grounds, of which this is it."

He paused for breath, and I broke in.

"But what's the point? What is a hunting ground, and how does it help?"

"This is one. They are certain districts of the planet where the agricultural value is small. Forestation is allowed to occur on them and they are stocked with various animals which run wild. They are of very large extent.

"Every young man or woman of the Bodrog class, when he arrives at seventeen years of age or a germane period, is turned loose in them and furnished with primitive weapons. Scientific determinations show that the history of the individual reproduces the history of the race and at seventeen years the young man is about at the semi-savage or low-civilized stage.

"From the time he is admitted to the hunting ground, the young man is not allowed to emerge for five years of your time. It is permitted for him to make certain studies if he cares to take the handicap of instruments of study along with his weapons and tools. For all other matters, his dependence is totally upon himself. The young men and women are under no restraint. They may do as they choose. If there are others of the same class they wish to kill, it is not imputed a crime. They may hunt for a living or engage in agriculture, if they think they can do this without others raiding and stealing their crops. They may form into associations. No one guides them. Upon emerging after their period is up their rank in society depends upon how they have accomplished the period in the hunting ground. It supplies also an excellent evolutionary process as only two-thirds of them survive."

"But," I objected, my ideas in a whirl at this return to barbarism in a race so far civilized as the Murashemans. "What if they don't wish to enter the hunting ground?"

"Very good, they cannot belong to the Bodrog or even the Davex. In youth, every child is subjected to a scientific determination for intellectual quality. Those of certain grades of intellect are named as Bodrogs, and unless they object, are turned into the hunting grounds. According to their conduct there, they receive different work when they come out; those who form groups or associations, for instance, being appointed political administrators. Some few of the Davex, who are our scientists, also come from here. Those who do not enter the hunting ground or who are barred from it by previous determination are shut out of upper employments and are not allowed to have more than two children."

"Did you go through a hunting ground?"

"Most certain. Is not my name Bodrog? But I am of the Fotas class, which is explorer. During my period in the hunting ground, I stayed almost altogether alone and wandered about from place to place. Hence, I am a Fotas."

THE shadow of a problem rose in my mind. "Did you say that girls were turned loose in the hunting ground as well as men?"

"Certainly. Women are in all professions."

"What if . . . that is, suppose—do they ever join with any of the men?"

"Oh, you mean do they ever have children? Certainly. If they have children while in the hunting ground, the responsibility is their own. But in cases where it happens, the mother is nearly always of a high type fitted for a lofty administrative or scientific position, and receives due credit for her courage."

"Did you say that nothing was done to those who kill others while in the hunting ground?"

"Certainly not. Before going to the hunting ground, as I already say, they are examined for all criminal tendencies. There is one point in which your science is very behind ours. They do not recognize the difference between criminal tendencies and the natural effervescence of youth. Youths really belong to a separate race. Many of your good young men are made into criminals by the wrong methods of handling them when they injure your laws while young. With those having genuine criminal tendencies one cannot be severe. On the other hand very few have these tendencies.

"But I disquisite. In the hunting ground everything is lawful. Merely a stage in development of the individual. Our scientists only want to know how each occupies his time in the hunting ground."

"How do you make certain you do know?"

"All persons tell the truth. Of what use to do otherwise? Of course, all young men are taught to know the truth only will avail them, and besides we have the truth serum. One application and it becomes impossible for the individual to do otherwise than tell the truth.*

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*Perhaps Ashembe was incorrectly quoted here, or his knowledge of English betrayed him. The "truth serum" is by this time well known to the scientific world, but its effect is evanescent, extending only over a brief period of time. Of course, there is the possibility that the Murasheman "truth serum" is something different—but this may be neglected, as its apparent identity with the similar drug known here is perfect in all respects.

I stretched. "All very interesting," I said, "but I'm hungry. Let's have something to eat. How soon before we will dare to go out?"

"In the morning," said Ashembe. "I am uncertain how far we are from the borders of the hunting ground. We will have to make instrumental calculation. It may be long journey. There are always those in the hunting ground who will attempt to secure from us whatever we possess."

"What about your destructive ray? Isn't that weapon enough to protect us?"

He laughed, a trifle grimly. "You do our people insufficient credit. Some young men and women in the hunting ground are very clever at laying ambush. We would not have the chance to use the ray, if caught. Moreover, the use of the ray-flash in the hunting ground is contrary to regulation. I am unable to do so."

"I should think there would also be regulations against attacking returning explorers," I said.

"Wherefore? Explorers of the Bodrog Fotas are supposed to be able to care for themselves. To impose regulations of such a kind would be the beginning of destroying the whole spirit of the hunting ground. There is no regulation in the hunting ground."

"Didn't you just say there was a regulation against using modern weapons?"

"The law is against bringing them to the hunting ground. Since we are here with the Shoraru, it is considered a small spot of territory belonging to the rest of Murashema."

"Oh."

We settled ourselves comfortably to spend the night. I had one more question. "But aren't we taking a chance by not setting out at once instead of waiting till daybreak? Won't more of the people here find us and lay for us when we come out?"

"Lay for us? You mean, set ambushes? You forget how long we are already here. I am astonished that we were not shot at as we emerged."

"But won't someone else on Murashema have seen you landing, and be sending expeditions?"

"Not expeditions. I am an explorer, as I repeatedly say. I am supposed to aid myself. Pause." And he dug out his tensal helmet, snapped some keys in it and put it on. An hour later, he rose. "The landing has been perceived," he said. "But they do not know it is I. There are always many Shoraru traveling here and there. They are awaiting report and conjecture that my sending apparatus is damaged. Nothing further to do."*

CHAPTER XXVI

THE Murasheman day is only about twenty-one hours in length, and as the planet's orbit is more nearly circular than the earth's and the axial inclination less, both days and seasons have greater regularity than ours. In something near ten hours, I should judge, Ashembe led the way to the door of the space ship again, and we crawled through into the wrecked outer chamber, where he paused long enough to seal the inner door with the welding flash, before taking a cautious look around outside.

Our improvised ladder still stood against the side of the space ship, to my eyes, just as we had left it, but Ashembe frowned as he looked it over in the pale cold light that just precedes the rising of the sun. "We are found," he said in a whisper, looking intently at the ground nearby. "See," he pointed. I could make out nothing but a little depression in the sand which might have been a heel mark made when the tree was set against the side of the car.

"Print of a sling base," said my companion in answer to my unspoken query. "The comer has covered footprints but forgotten this. Here!"

He handed me a knife, sloyd-shaped and with a narrow six-inch blade, made in one piece with a metal handle.

"Where did you get it?" "Made it during the night," he replied, very matter-of-fact. "Quickly, descend the tree. I will cover your descent." Producing a knife, the mate in all respects of the one he had handed me, he balanced himself just inside the door with the weapon ready in his hand for throwing.

I had begun to realize that the danger was perfectly genuine and imminent, and I slid down the tree at the cost of some scratches with the weapon firmly clutched in my fist, as though I expected to run into an ogre at the bottom. Nothing happened. My feet struck the sand with a soft plud! I picked myself up and looked around. A few branches were stirring gently in the light air of morning; that was all. No sound; no other motion.

A moment more and Ashembe stood beside me. He looked around briefly, and motioned me wordlessly to follow him. Imitating his motions, I bent low, and ran rapidly behind him into the scrub, straight ahead for a short distance, then back along the way we had come, and off to the right a little way from our path to a clump of stubby trees. "Cut down two straight trees," Ashembe whispered, balancing his knife for throwing, "while I prepare the footprints."

Still no sound or motion from the scrub. Under the direction of my companion I hacked down, cut the limbs from and smoothed into staves a couple of the short, pine-like trees. I noted the thickness of the bark and the softness of the wood where I cut into it. Ashembe, returning from his mysterious business of effacing the footprints, looked them over critically, and shaking his head a trifle over my workmanship, drew from his pocket two long and broad metal points, with sockets at their bases. At the side of the socket, each had an ingenious screw arrangement to hold the head firmly to the shaft. He fixed these heads on the staves I had cut, hefted and balanced them, and then cut an inch or two off one. They made not unsatisfactory javelins when he had finished—light and well balanced.

By this time I had become more contemptuous of the promised terrors of the hunting ground. Surely, if we were to be set upon, the most defenseless moment when we emerged from the Shoraru would have been the time. A man descending a crude ladder with his back to any possible enemy is extraordinarily helpless, and I did not believe that our adversaries (if there were any) would be so foolish as to wait until we were fully armed and had found a place of concealment.

A huge red sun popped suddenly above the low mountains in the east, flooding the shrub with light. It was all very delicious—light, open air, green things around. We were home at last. I wanted to shout and sing. The thought of an armed attack faded to something like incredibility. I turned to say something to Ashembe, and just as I turned, he gripped my arm quickly, pulling me down beside him to a crouching position and pointing in the direction of our vehicle.

Its top was clearly visible above the thicket, not far away, the rays of the dawn-sun picking out the pits and scars of the surface in a way that gave me an odd qualm of homesickness as I remembered how much like the meteorite on the shores of Sunderland lake it looked. I could see nothing unusual, but as I looked, there was the sudden sound of a clanging blow—of metal striking metal, as if someone were hammering at the space-car's side. Ashembe pulled me by the arm, motioning me to follow, and crawled on hands and knees away from the clump where we had made our weapons in the direction we had come. The clanging blow on the Shoraru was repeated; my companion halted by another clump of trees and peered cautiously through the branches. I watched with him. Nothing.

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*This chapter is in quite bad shape. The text is frequently well-nigh unreadable, and at the end of the chapter appears the following note in Schierstedt's handwriting:

> "*Dont forg.* 2 insrt. my quest. 'Dont you leave lot to chance' & Ash's ans. explaining there is no such thing as chance; all governd by natural laws."

It would be interesting to have Schierstedt's (or rather Ashembe's) exposition of this point of view. Unfortunately we have not, nor is there any place where such a remark would seem to have been the proper thing.

Again the sound of the blow, and among the branches I thought I detected something that had not been there before. A moment later I was certain—a man was cautiously following our trail into the scrub. He looked young; was dressed in a jerkin of dark leather, sleeveless and stained in weird markings by some woodland dye. On his head was a close-fitting Phrygian cap of the same material and his legs bore pliable buskins. At his belt, a hand-axe swung and over his shoulder a quiver. He was carrying a bow, with arrow a-string, and moving slowly, peering from this side to that.

The enemy! I thought, and drew back my arm to test my new javelin on him. But Ashembe, before I could throw, grasped me by arm and body, pulling me flat on my face behind the trees. I dared to lift my head and caught a glimpse of the hunter. He had turned, and stood with drawn arrow pointing in our direction, eagerly watching for the source of whatever whisper of sound had reached him. A chilly feeling made itself felt along my back. Death sat on the point of that shaft.

As I watched, another man, dressed like the first, and like him, armed with a bow, but carrying also a round shield slung over his shoulder, appeared soundlessly not twenty feet away from us on our side of the trail as though he had risen from the earth. The first bowman relaxed his tension on the string and made a rapid series of motions with one hand; the other turned and locked in our direction—right in my eyes apparently—then turned back and himself moved a hand rapidly. I saw why Ashembe had kept me from throwing the javelin.

A moment more of this silent colloquy and the newcomer vanished as mysteriously as he had appeared, while the questing bowman turned again to the trail. From the left, the clanging sound of another blow on the Shoraru rang out again.

We lay in our covert for perhaps two hours more. After a time the sound of the blows on the side of the car ceased and we saw one of the hunters among the trees as he glided silently back along our trail, his face wearing an expression of cold and intense thoughtfulness. Evidently they could make nothing of it, and preserved certain suspicions. At last Ashembe, moving slowly and holding his body low, started out motioning me to follow him.

He led across the intervening space to the trail, where there were now two series of footsteps mingled with our own, and stepping carefully, so that his feet should fall in the same tracks as before, began to lead down it. Every few moments he paused, listening intently. It was not till he reached the place where we had turned aside, that he let out a long breath, and stepped out briskly, moving away from the car.

He set a killing pace and at the end of an hour I was forced to grab his arm and whisper that I wished to halt. He smiled, "All right," and then in an ordinary voice, "I think we have outdistanced pursuit for the moment. Let us have to eat."

We dined on some of the concentrated foods from the Shoraru, and after a brief rest, set out again at the same rapid pace as before. The sun grew warm. Unused to exercise, I tired easily, and it was not long before I was again calling for a halt. Ashembe spared me as much as possible during that day's journey, but for all that, it was a nightmare to me. I was never so heartily glad as when, with the sun westering, Ashembe turned round, led me back along the trail we had made and off to one side as before, returning to obliterate the footprints that marked our divagation.

The landscape had changed not at all. Twice we crossed the beds of small streams, deep-cut to reddish rock amid the sandy soil. For the rest there was only an infinitude of the pine-like trees, and low rolling sandy ground. Our camp was pitched a few paces back from the edge of one of the little canyons where a stream ran. From it we secured water for drinking and washing, one of us dipping it up while the other watched from concealment on the bank above, javelin in hand. When our meal was finished, Ashembe cut down another of the trees, and working with some care and many pauses to measure the result, began to shape it into something or other. It became distinctly chilly; my request for a fire was refused with a mere shake of the head, and when I dozed off to sleep, it was from sheer weariness rather than in the comfort that insures rational sleep.

CHAPTER XXVII

I WAS wakened in murk night by the pressure of Ashembe's hand on my shoulder. The night was extraordinarily bright; I could make out his features clearly in the light of the stars, and he had a finger laid on his lips to enjoin silence as I rose. He pointed off in the direction I took to be north and I dimly perceived a faint, ruddy glow somewhere there. As silently, he motioned me to gather up my few belongings and follow, and set off through the brush, following the line of the stream a little back from its verge.

I was staggering sleepy, but I toiled after him, wondering what all this meant. We had traveled about twenty minutes and must have covered nearly a couple of miles with the red glow growing stronger all the time, when he halted so suddenly that I ran into him. After a second of listening he dropped to his hands and knees; I imitated him and we began to crawl toward the bank of the stream, pausing every time a twig snapped. I heard nothing, but, willing to believe in the greater acuteness of his perceptions, I stopped and moved as he did. He came to a halt behind a clump of trees, holding out a restraining hand to keep me from making unnecessary noise. I still heard nothing, but a moment later my ears caught the sound of a pebble, rolled by a careless foot, and then a low gurgle of laughter. Shadowy forms became apparent in the dimness of the canyon below.

There were four of them, following the stream toward its mouth; first one man alone, then three in a group, all heavily loaded. I expected Ashembe to spring out, but he remained perfectly silent until they had gotten past.

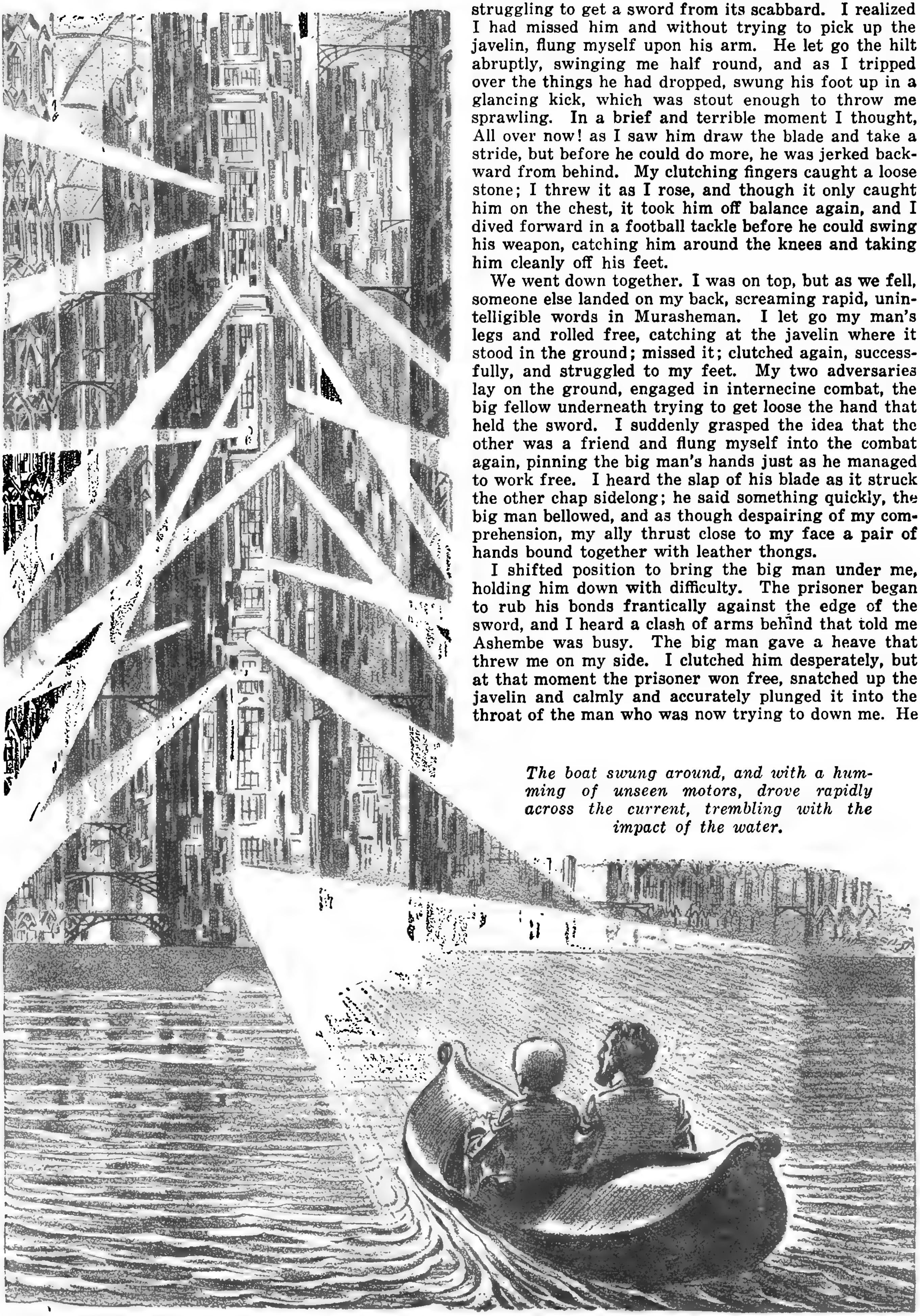
Then, with his lips close to my ear, he whispered, "No more. We will pursue. I will take the first one." And without further explanation, he began to work his way along the bank. I followed, my heart in my mouth. In a moment——

We were not long in overtaking them. The canyon made a bend away at a point not far below, and Ashembe led me across the tongue of land at a rapid gait. We ensconced ourselves at the edge of the bank and a moment later I could make out the form of the first voyager picking his way among the rocks, and then the other three. Without a sound Ashembe rose to one knee, balanced his javelin carefully, and flung it straight down into the form of the leader.

The man gave a curious strangled cry and tumbled into a heap with a clash of metal, as I flung my own weapon at the next fellow. Ashembe leaped down the bank with a shout; I followed him and things resolved into a haze of conflict. I was struggling with a burly chap who had dropped an armload of something and was struggling to get a sword from its scabbard. I realized I had missed him and without trying to pick up the javelin, flung myself upon his arm. He let go the hilt abruptly, swinging me half round, and as I tripped over the things he had dropped, swung his foot up in a glancing kick, which was stout enough to throw me sprawling. In a brief and terrible moment I thought, All over now! as I saw him draw the blade and take a stride, but before he could do more, he was jerked backward from behind. My clutching fingers caught a loose stone; I threw it as I rose, and though it only caught him on the chest, it took him off balance again, and I dived forward in a football tackle before he could swing his weapon, catching him around the knees and taking him cleanly off his feet.

We went down together. I was on top, but as we fell, someone else landed on my back, screaming rapid, unintelligible words in Murasheman. I let go my man's legs and rolled free, catching at the javelin where it stood in the ground; missed it; clutched again, successfully, and struggled to my feet. My two adversaries lay on the ground, engaged in internecine combat, the big fellow underneath trying to get loose the hand that held the sword. I suddenly grasped the idea that the other was a friend and flung myself into the combat again, pinning the big man's hands just as he managed to work free. I heard the slap of his blade as it struck the other chap sidelong; he said something quickly, the big man bellowed, and as though despairing of my comprehension, my ally thrust close to my face a pair of hands bound together with leather thongs.

I shifted position to bring the big man under me, holding him down with difficulty. The prisoner began to rub his bonds frantically against the edge of the sword, and I heard a clash of arms behind that told me Ashembe was busy. The big man gave a heave that threw me on my side. I clutched him desperately, but at that moment the prisoner won free, snatched up the javelin and calmly and accurately plunged it into the throat of the man who was now trying to down me. He



The boat swung around, and with a humming of unseen motors, drove rapidly across the current, trembling with the impact of the water.

gripped me convulsively for a second, then went limp and something warm and wet hit me under the chin. I felt ill, but struggled unsteadily to my feet in time to see Ashembe's opponent making off down the canyon and my friend making toward the recent prisoner with arm drawn back to strike.

"Don't!" I called. "He's with us!" Ashembe lowered his blade and came over to us.

"Quickly," he said to me, rummaging among the articles our adversaries had dropped. "We must go. Here."

He was extending to me a sword, a bow and some packages. I bundled them together anyhow and followed him up the bank of the canyon and off into the low forest. Our new-found friend came with us wordlessly.

The excitement of the fight left me quickly; I was heavily burdened, panting with my exertions and ready to drop with fatigue and sleepiness. But Ashembe led on remorselessly through the clutching branches and it was not for a good hour that he halted at all, flinging down his load and motioning me to do likewise. We were in a circular clearing, with trees all around it, and I never even bothered to pull branches for a bed; simply sank to sleep, utterly worn out.

The sun, striking down through the trees, woke me at last. I urged my aching limbs to a sitting posture and saw Ashembe and our new friend sitting on the ground before me, sorting the various things we had brought, and engaged in low conversation. Ashembe smiled a greeting at me and handed me food—dark meat of some kind with a strong wild taste, quite unlike the concentrated foods we had lived on for the last three years, and as I ate it, he introduced me to the new member of the firm.

"This is," he said, "Tandana Kabu," and then to the former prisoner, "Angara sheg Alvin Schierstedt loth umt mashec." I bowed from the waist and received the bent-kneed gesture of courtesy in return.

"She is," continued Ashembe in English, "extremely grateful for our rescuing her." (*"She!"* I thought, looking at the newcomer with aroused interest. I perceived a slender young woman, clad more or less like the hunters who had sought us the day before, but without the helmet; a pleasing face tanned by exposure to the sun and of the triangular shape softened to an oval, and—with so little hair that she would have passed for bald in New York . . . but it was she who had stabbed the man through the throat!) "grateful for rescuing her. She was a member of a small agricultural association in the hunting ground—where we last night saw the fire. It was raided by a predatory association, and most of the people killed. She was taken prisoner by the three we attacked."

"Tell me something," I said. "Did you know you would run into that gang with a prisoner?"

He smiled. "Oh, no. I did not attempt. But I felt sure that where there was a fire there had been a raid. At first I hoped only to find some equipment the raiders had overlooked. When I heard them . . ."

Tandana Kabu put in a word or two. Ashembe turned to me again. "She says you are a very brave man to attack the raider. He was Agogai Besh and he was regarded as a very brilliant young man."

I bowed an acknowledgment of the compliment, but could not forbear a sneer. "Is this the way your process of selection works out? You lose your best young men through a mere accidental encounter."

"You do us injustice," he countered. "Appearances are erroneous. Agogai Besh was regarded as a brilliant young man but he made strong errors on this occasion. Mark you well. First, he failed to keep his band together at the end of the raid; second, he carried Tandana Kabu off as unwilling captive—he should either have persuaded her to come, or let her go; third, he was overburdened with plunder; fourth, he came down the bed of the stream because it was easy instead of taking the safe path through the forest; fifth, he had no picket out, so our attack was the complete surprise. This is all very irrational, passionate, and careless, and it is just such irrational and careless characters that we desire to eliminate. He depended too much on physical strength; not so much unlucky as a bad workman." And he waved his hand in a gesture of dismissal for him.

"But we have no picket out either," I protested.

"Truthful," replied my mentor, "but this is daytime, and not on a traveled road, and we are to move immediately. Come hither."

HE had gathered a number of articles into a pack which he proceeded to adjust for me; not on the shoulders as I have always carried packs in the woods, but so that the weight was carried on the hips by a system of leather thongs running round the body and over the shoulders. After a short time I found it more comfortable than the familiar system.

I was also given one of the swords captured in the fight of the night before; a short, heavy blade shaped like the illustrations show Roman swords to have been, and better suited for close-range cutting than thrusting. Each of the others carried a duplicate of this weapon and a bow as well. In place of the latter, I was supplied with three or four javelins, and we set out.

Ashembe and I plodded along together, threading our way carefully through the trees. Our new friend disappeared into the growth at the right, arrow on string, and I did not see her again until we halted for rest, when she suddenly materialized out of the scrub with the carcass of a small animal slung over her shoulders.

The need for hurry had passed, and we moved slowly through the forest, halting to examine suspicious clumps of trees. Once or twice a rustling sound would bring us to the alert, but always Ashembe lowered his bow with the announcement that it was only an animal of some kind. We might well have been traveling the forest round Sunderland Lake but for the sandy quality of the soil and the stubbiness of the trees—and yet there was something curiously different. I pondered over this difference, as I walked, trying to solve the elusive, unfamiliar quality, and then—

"Don't you have any birds?" I asked.

Ashembe shook his head. "No birds on this whole planet," he said. "They represent a peculiar order of evolution on your own planet. Never have I seen anything like. We have avian animals, in character similar to your bats, though of further development, but nothing like your birds."*

We halted by another of the canyon-cutting streams, just back from the edge as we had on the previous night, and Tandana Kabu popped suddenly in on us with the results of her hunting for the meal. Not unfamiliar with the duties of building a camp, I set about gathering dry wood while our companion skinned and prepared the animal for cooking. We dined merrily enough, with the sun warming our backs and an Octoberish tang in the air that lent comfort to the camp fire.

I expected Ashembe to press on at once after we had eaten, but after exchanging a few words with Tandana Kabu, he sprawled out under a tree and went incontinently to sleep, while she slipped off with her bow to stand guard. It was not till some time later that I discovered that he found the clear, bright autumn-like noon uncomfortably warm.

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*Odd, in view of the doctrine laid down by Ashembe that similar causes always produce similar effects. But perhaps the cause was lacking on Murashema. We know nothing of the underlying reason for the evolution of the bird on earth.

The rest of our journey through the hunting ground was a repetition (or nearly so) of that one. Twice we ran across footprints and on the second occasion Ashembe, after running back along the trail for some distance and giving the marks a prolonged study, changed direction abruptly and put us on a forced march of half a day. "Raiding party from a predatory association," he explained, "at least four well-armed people."

The encounter was a real danger. It came one afternoon, when Ashembe was going on some little distance in the lead with Tandana Kabu out at one side and myself at the rear of the procession—a triangular formation with each just out of sight but within hearing of the others. Dusk was coming on and I was having a little difficulty with Ashembe's trail when I heard a low whistle from the right—Tandana Kabu's signal.

As rapidly and silently as possible I made for the spot, holding a javelin in readiness. As I rounded a clump of the bush-like trees, I caught sight of the girl, poised like Diana behind a small trunk, her face pale, an arrow drawn to the head on her bowstring, and just beyond her among the trees a yellow-brown form that moved rapidly in and out. As I emerged on the scene, there was a snarl of animal ferocity; Tandana Kabu let drive the shaft and at the same moment the yellow-brown animal leaped. She dodged, but not quite clear. I saw her tumble, saw the beast swing round to hurl itself upon her, and not daring to throw, hurled myself upon it with a shout, driving my javelin into the furry back, and snatching for my sword.

The animal switched suddenly round, jerking the javelin past my head. I fended off the force of his rush with the other javelins in my left hand, taking a long, diagonal scratch down the arm as I did so, and struck furiously at the snapping head with my sword—once, twice, three times. I got another scratch, everything was covered with blood, and my antagonist collapsed suddenly, giving me a final backhand swipe, just as Tandana Kabu picked herself up and got her sword out to aid me.

A moment later Ashembe was with us, and the two looked at my injured arm and the animal I had killed, talking excitedly in Murasheman. The beast bore a certain resemblance to a kangaroo. It had the same long hind legs, armed with heavy claws and the same thin body. But the head was heavy, lupine and infinitely more savage than that of any kangaroo; the ears were short, and where I had laid its face open with one of my blows, there was a double rank of the most savage-looking teeth.

"She says," said Ashembe, bandaging my arm, "you are very valiant, but I do not think so. I think you are only ignorant. This animal is an apya, and is considered more than a match for men armed with primitive weapons. They are very dangerous. You were fortunate to escape. Observe that you have given it several wounds, any one of which should be mortal, but they are so tenacious of life that even after such wounds they frequently kill people.*

After this incident, Tandana Kabu's gratitude became so pronounced as to be actually embarrassing. She set aside for me all the tidbits at our meals; she tried to relieve me of my share of the carrying; and I had the greatest difficulty in persuading her to wake me up to take my turn at watching our camp at night instead of doing her own share and mine as well. On all these proceedings Ashembe looked with an amused tolerance. "She is very young and romantic," he would say. "That is why we put young people in the hunting ground. They grow out of this."

But the most embarrassing moment was still to come. We had journeyed for nearly ten days, when one night I saw along the horizon the haze of distant lights like an aurora and quite different from the inefficient illumination with which the two diminutive moons of Murashema furnished us from time to time.

"That is the border of the hunting ground," said Ashembe when I asked. "It is Atargol city."

Tandana Kabu had seen it too, and after a few moments she turned to Ashembe with a remark, then looked expectantly at me while he translated.

"She say," he declared, "that if you will remain in the hunting ground with her until her time is up, she will have a child by you and after coming out of the hunting ground she will remain with you if the eugenic committee permit. . . . I should advise against it. The affections of these young persons are not fixed. Moreover, it would be a most uneugenic proceeding; if you emerged from the hunting ground in safety, the eugenists would be almost certain to remove any child you had. And I doubt whether they would permit you to live together afterward. You have not passed any of the necessary tests. I suggest it would be well to promise her to return if possible. You had better at least see our cities first."

I was not prepared to agree with him as to Tandana Kabu's fickleness; but at the same time it was true that I was more desirous of seeing Murasheman civilization than of plunging into a life of idyllic barbarism with a charming young lady I had met only a week before. And yet . . . like many another man before me, I temporized. "Tell her that I'll think it over and let her know in the morning," I said.

Ashembe translated rapidly; I saw her face fall from eager expectancy to dark disappointment. She stepped forward, made the gesture of salutation and disappeared in the gathering darkness.

CHAPTER XXVIII

THE next day, about evening, we toiled up a long, low hill, and from the summit looked down a back-slope, perhaps half a mile wide, to where a deep, swift river curled round the walls of a city—the first buildings I had seen since, my God! how long since I left New York for my summer vacation at Joyous Gard with Merrick Wells.

For a moment we stood at gaze, Ashembe like myself struck dumb with the glory of the prospect. Above the river a congress of lights sent long pencilled beams up and down the stream as far as the eye could reach; and at the ultimate limit of vision it seemed as though they reached on forever. And up and up, as far as the eye could reach, also in the uncertain light, the buildings towered immensely, white and glorious, their terraced sides holding the last rays of the sun from behind us, with arched windows and doorways breaking the monotony of the plane surfaces. Above the soaring towers one could just make out tiny black dots that hovered and dropped or moved here and there with the rapid vivacity of flies. The whole scene—glistening city, flashing lights upstream and down, moody dark river and forest growing tall with the shadows of evening behind us—was utterly silent, like a picture in a dream.

For a moment we gazed, then Ashembe led the way down the hill and across the sand to the river's brim. A beam of light, paler and yellower than those that searched the surface of the water, detached itself from the wall near us and smote our faces with such brilliance that I was fain to cover my eyes, but Ashembe, as if welcoming it, tossed his arms aloft in a gesture of triump and began to signal with his hands.

He finished; and the light about us turned redder till it was like the setting sun, and we walked the last three hundred yards of our journey bathed in a fiery glow. Save for the light there was no sign from the silent city till we reached the very edge of the river. Then a boat of some kind, unmanned as far as I could see, shot out from the opposite bank and breasted the water toward us, picked out as we were in a beam of red light.

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*Professor Grummett expresses surprise over this statement. There is nothing astonishing about it. The bear (that is the grizzly) has been known to do the same.

At the bank where we stood, it nosed gently in—in a wide, shallow, high-ended craft with the bow decked over, and lacking in any visible means of propulsion or control. Following Ashembe's lead I stepped into it and seated myself. The boat swung round, and with a humming of unseen motors, drove rapidly across the current, trembling with the impact of the water. I looked up; one moment I saw through the red radiance around us the endless vista of searchlights reaching far up into the cloudless sky; the next we were moving under an archway down a dark passage where the walls came in close enough to be touched on either hand. Another moment still and we were out of the arch into the blaze of a daylight more brilliant than any I had seen on Murashema—not the slowly dying twilight we had left but the full glory of noon. The silence around us dissolved into a vast roar of commingled sounds.

My senses reeling with the shock, I looked to Ashembe for moral support, but there was no help there. He sat beside me like a ramrod, stern and proud, his lips compressed. The boat was moving slowly to a white stone jetty, where a little group of people stood waiting to receive us. There was something inconceivably odd about them and it was not for some moments that my numbed senses gathered, that it was not the unfamiliarity of their clothes or the thinness and delicacy of their faces and fingers, but the fact that one and all they were hairless and hatless. And they were looking at me—my thatched head and countenance unshaven during the whole of the trip through the hunting ground with well-bred curiosity! I did my best to maintain the dignity the occasion called for, but I comprehended what must have been the emotions of the Indians, whom Columbus took to the court of Spain.

Ashembe sprang out of the boat, extended his hand to help me up and turned to those waiting on the pier with a few rapid words, at the end of which he indicated me with outstretched hand. They bent their knees in the gesture of welcome and I bowed, then followed them across the pier and up a ramp to a platform where a circle of curved seats with arms, padded in dark material, stood in a waist-high enclosure of metal. We seated ourselves; one of the Murashemans bent forward a moment and the enclosure revealed itself as a vehicle. We moved off gently without shock or noise, swinging around an arc of a great circular street among buildings of cyclopean mass, occasionally meeting other vehicles like our own.

Our car began to climb a ramp that branched inward from the circular street, issuing presently upon a long, straight avenue some twenty feet above the level of the pier. It stretched away before us, perfectly straight and banded with alternate streaks of light and dark where it ran under the overarching buildings. But I caught no more than a flashing glimpse of this. Our vehicle swung to the left, gathering speed at a terrific rate, and, as it did so, a series of folding arms rose out of the metal enclosure, and carrying some transparent web of material between them, met overhead to roof us in against the wind due to our speed.

I did my best to control a feeling of strained expectancy; the speed, the soaring height of the buildings, the universal light, the simplicity and the cultured elegance of design of our vehicle, were all productive of a desire to question. But the Murashemans maintained a dignified silence and I felt that to ask then and there would be to confirm their too apparent estimate of me as a barbarian.

We slowed up suddenly and the car moved off the straight roadway and down a ramp to another circular street exactly like the one we had left at the pier. I caught a vista of architecture as we swept round the curve and then we were in a wide doorway that gave on a great hall. Several people were walking about, but they gave us no more than momentary attention as our vehicle crossed the hall to the farther side. Here one of the Murashemans rose and turned a key that projected from amid the decoration. A solid section of the wall slid back silently and our car passed into the gap. Another key was turned; the panel slid shut again, and we began to rise.

An elevator ride is always long when one has been absent from cities for some time. I have noticed it in New York even. But this one seemed exceptionally prolonged, and I felt the blood drumming in my ears with the speed and distance of the ascent. I looked at Ashembe; he was sitting with his mouth wide open, and as I turned, he whispered, with a smile, "Open the mouth to preserve yourself from the effects of pressure."

A moment later we came to rest without a jar. Another panel moved open and the reception committee led us out along a long and narrow passage at the end of which a door was opened by one of the omnipresent keys. One of our guides said something to Ashembe, and he turned to me with a translation.

"This is your apartment," he said. "You are to stay here for some several days, while I return to the place where the Shoraru has been left with a guard and remove therefrom the mercury and the records of our journey. You will find everything necessary in the apartment and your food will be sent to you. If you have any difficulty, turn this key (he indicated the second one of a row just inside the sliding panel) and someone will come to assist you. Fare thee well."

I entered, and was left alone.

I looked around.

My temporary home was an apartment of three rooms, the outer walls of which, formed by the outer wall of the building, were curved to the arc of a large circle. All these outer walls were of glass (or some other transparent material—I found by experiment that it was practically unbreakable) from floor to ceiling. From them one could look out and see beyond the glass walls of the exactly similar building some hundred feet or more away, a succession of other towers, stretching off in orderly procession into the utmost distance.

Though it had been evening outside the city when we crossed the river, I noticed no trace of night here; a soft light, like that of a brilliant but cloudy day, suffused everything, and when I stepped to the window to look up I could see only an overarching roof of what appeared to be bright clouds, far above me. Up to this cloudy source of light the buildings around me soared, to be truncated abruptly where they met it, and when I looked down, I saw that though the tops of the buildings were far above, I was yet so high up the tower that the streets were just barely visible below.

The floor of the central room of the three, to which I had been admitted first, was covered with a soft brown material not unlike a carpet for flexibility under foot; but as I could find no point where it was loose or where it did not appear to fade into the material of the walls, I decided that it was a composition of some sort forming the floor. The walls were decorated in a geometrical pattern of yellow and dark grey, with a pleasing irregularity of design. Near the door, as I have said, was a row of keys; over each a plate of white metal bore Murasheman characters. Against one of the inner walls, near where they slanted toward each other at the narrowest part of the apartment just by the door, a table stood against the wall. Like all the other furnishings, it was a dark metal, its supports decorated with the same tasteful geometric arrangement as the walls, and its top quite bare.

Against the opposite wall, a row of seats like those in the car was placed, and scattered about the room were several more chairlike seats of a form like those "Roman" chairs which were popular in the Victorian period—the seat curving up to form the arms. They differed from the Roman chair in having flattened arms on which one might conceivably rest a notebook, and a single band across the back, just below shoulder height, as a support for the back of the sitter.

This completed the furnishings of the main room. Near the glass outer walls, doors led right and left to the other rooms of the apartment. Both of these stood open, though one was closed off by a curtain, and at the side of each was one of the keys, with its accompanying metal plate hanging on the wall. These were, as I correctly assumed, for the purpose of opening and closing the doors.

The doorknob is a device unknown on Murashema.

I tried the door at my left first. The room it gave on was smaller and without the soft floor covering of the living room, the floor was bright and hard. Three of the chair-like seats were arranged against the wall here, and there were two more in the room. Over against the wall seats stood a table, simpler than that in the living room, and covered with a white substance of soft texture. In the opposite wall was the usual row of keys, and instead of the yellow and gray of the living room, this one had large panels in blue and cream. Save for the tables and chairs, it was quite empty. I conjectured that it might be the kitchen or dining room.

The room on the opposite side was totally different. Instead of the cheerful blue and cream and yellow and gray, it was decorated in a neutral green and save for two chairs, was quite devoid of furniture. There was an unusually long row of keys just inside the door. It might have been a bedroom had any bed been visible; and as I thought of this, I remembered that nowhere in the apartment had I seen such an article. Perhaps I was supposed to sleep on one of the tables or perhaps there was some folding arrangement. I promised myself to investigate. For the present, my chief need was food, and I returned to the room I thought was a kitchen, fully intending to try each of the keys until I got what I wanted.

CHAPTER XXIX

I TRIED the key at the left end of the line first, with the idea of seeing what I could get for myself without summoning an attendant, who would at best, be difficult to cammunicate with. One of the blue and cream panels slid to one side, giving place to a screen of shining metal. Upon it appeared a picture of an ornate goblet filled with a sparkling red liquid. A wonderfully clear voice said a few words in Murasheman; the goblet turned round without any visible agency directing it, and before I could decide what it meant, disappeared, to be replaced by a plate piled high with a jelly-like substance in green and blue stripes. Like the other, this picture was accompanied by a brief speech, and like the other it presently disappeared.

It was interesting, but inconclusive. For something like ten minutes I gazed at this Barmecide feast, while dish after dish was presented to my gaze and then withdrawn. Then, before I could decide how I ought to go about expressing my desire for the viands, the last dish vanished, the panel closed again with a click, and the key was returned to its position automatically.

Clearly, in order to bring the meal to materialization, some definite act on my part was needed. The next question was how to do it. I tried the key again; and when the panel slid back on the representation of a bowl filled with a steaming amber-colored liquid, I quickly snapped the second key. The effect was hardly what I had hoped. A smaller panel near the ceiling opened and from it issued the sound of a stringed instrument, being played in a series of the most execrable screeches and squawks I have ever heard in my life. I hastily returned the key to the first position, closing the panel, and tried the next one as the soup vanished from the screen in favor of a platter of rather delicious looking buns. This time I got a voice, engaged in a lecture of oratorical character, to judge by the pauses and the sententious rise and fall of words. No use. I shut this one off, and gave my attention to the screen where the food was appearing again. The buns had gone and I was looking at some round red objects swimming in a brown sauce.

There must be some special way of setting the key, I thought, and tried to turn it to a position half way between on and off. It immediately slipped from my fingers to the off position and the panel slid to with a bang to cut off the pictured meal.

This was getting serious. However, there was nothing like being thorough, and once more I turned the key. The panel slipped back again, and a wholly new procession of dishes began. This time I gave my attention to the edges of the panel itself. At one corner there was a small projection that might be either a stud or the head of a screw. I tried pressing it, and when that was without result, remembered in time that I had never seen Ashembe use a button-contröl of any kind; everything had been turnable keys. With a flash of inspiration I turned the stud. Picture and voice ceased immediately; the screen, like the panel before it, slid back, and a moment later there appeared in the deep-recessed hole a round container of brass.*

I lifted it out and took it over to the table. At one side near the base, the inevitable key was placed in a counter-sünk niche. I turned it; there was a snap and the lid of the container came away in my hands revealing a dish like a soup-plate filled with a jelly from which a faint flower-like odor exuded.

A round flat spoon accompanied it. I tasted it—it was sweet and pungent, of the same character as the foods Ashembe had made on the Shoraru, and I ate with a relish sharpened by hunger. The dish finished, I returned to the screen, snapped it again into position by means of the stud and when another pictured dish appeared, ordered it by the same means as the last. I had accomplished the primary necessity of man—the provision of food.

My dinner over, the problem of how to dispose of the dishes arose. I am blessed (or cursed) with a passion for neatness, and it was obvious that I was not intended to keep the containers in my room. I decided that they would probably be returnable by the same means that brought them, and snapping on the food key again, I turned the stud and when the panel slid back, balanced one of the used containers on top of the new one that appeared in the gap. There hardly seemed to be room for more.

I shot the screen back into position, waited a moment for the containers to be taken care of and then opened it again. Three containers came tumbling out of the narrow space and I opened them, to find two entirely new dishes of food in addition to the empty dish I had left there. Getting rid of dirty dishes began to look like a Chimera's head of a job.

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*More likely the vessel was gold which, of course, has no particular value on Murashema.

There was only one thing to do and that was to try more keys. I already knew what the second and third of the series would produce. The fourth snapped another panel back, and on the screen I saw a couple of diminutive figures in Murasheman costume who began to speak and move around. A play of some kind. I shut it off and tried the next key.

The result was truly startling. Instead of a single panel, half a dozen small ones at the base of the wall and all the way around slid back, revealing rows of tiny nozzles from which jets of water issued with such force that I was nearly carried off my feet. I hastily shut the panels, but the damage was done. My dining room was already half afloat and the water was pouring through into the living room. I snapped the door shut to cut off the flood, and balancing myself with some difficulty on the seat of one of the chairs to get out of the water, turned the key again in the hope that the faucets were accompanied by a drainage arrangement for disposing of the surplus water. It seemed that they were, for the flood rose no higher, but whenever I shut the panels, a residue of water remained on the floor. After three or four tries, I gave it up and turned to the next key.

This time I got a current of warm air from panels at top and bottom of the room. It dried the water in a trice, whistled through the room in a miniature gale and would even have carried off one of the spoons, had I not rescued it as it was fast being drawn into the outlet. It was all very interesting and useful, but I was getting no further with my problem of dirty dishes.

With the next key I finally achieved success. A panel next to the one that had brought me my dinner slid back on what would be called a dumbwaiter on our earth. Neither sound, water nor jets of air issued from it, and I conjectured that it was what I wanted. In it I placed my dishes, shut the panel, and when I opened it again, found to my delight that they were gone.

BY this time I was thoroughly tired; I had been marching with Ashembe all day, and the trip through the city and my adventures in the search for food had consumed enough time to make it very late. I decided to try the bedroom and its devices.

Luck was with me there—or shall I say that the Murasheman arrangement was excellent? At all events, the first key I turned caused a big panel to slide back in the wall, revealing a bed on four wheels, which, animated by a spirit of its own, trundled out into the middle of the room. At the same time, apparently by means of some synchronized device, a slow current of cool, fresh air, from an indiscernable source, filled the whole apartment. Had it not been for the light which streamed uninterruptedly through the glass outer walls, the sleeping arrangements would have been perfect. As it was, I had some difficulty in getting to sleep.

I woke after ten hours of delicious slumber (oh, the feel of a bed again!) with a fine feeling of comfort and strength. After keying the bed back into place, I went to the dining room and had breakfast, this time without the false attempts and difficulty in disposing of the dishes that had characterized my evening meal.

Breakfast out of the way, I started out with the determination of trying every key in the three rooms. It would serve to keep me amused, and I needed amusement; the three rooms of my apartment, for all their tasteful decoration and elegant appointments, were extraordinarily bare by earthly standards. I decided that the dining room had already been fairly well explored and that the bedroom could wait; there remained the living room. The second key would bring me an attendant, I recalled—well, never mind that. I had no need of help. So I stepped to the first key and turned it.

Bzzz-click! said a piece of machinery somewhere, and I stood in utter darkness! Fortunately my hand was still at the key. I snapped it back again and turned in time to catch sight of the quickly-rising shutters that closed off the glass wall of the apartment. If I had only known that the night before! I recalled wondering sleepily if the Murashemans always slept in a glare of light.

Passing over the second key, I tried the next. A portion of the wall slid back, revealing a screen like that from which my dinner had been ordered. On it appeared the picture of a Murasheman city, the towering walls glowing in the rays of a dawn sun. The point of view changed as one watched, the whole gorgeous structure appearing to sink and tilt. A moment more and I was looking down on it from above. Seen from overhead, the city was no longer a collection of towers but a flat, gray plain, with markings of various colors here and there, and little figures running about on it. It struck me suddenly that the whole city was roofed in and that this was the explanation of the constant light as well as of the flatness.

The pictured city roof rose toward me, slipped a little to one side, and then stood still; the point of view changed and I saw two Murashemans alighting from a vehicle like a small edition of an airplane with diminutive wings, no propeller at all in front and a long, knife-like helicopter blade that was just ceasing to revolve. I heard the sound of their feet on the roof of the city and they began to talk. Another play. It would do to return to later; I might gain considerable useful knowledge of Murashema and its people from this source.

The next key gave me what appeared at first to be a different type of play (or movie). I saw a group of men sitting in a large oval hall walled with windows and running into a series of arches at the top. One of them was making a speech. Though I could understand no word of what he was saying, there was something so arresting in his demeanor that I kept the screen on. To my surprise, it suddenly went blank, a voice spoke a few words in Murasheman and another picture began to form.

I saw the scrubby pines and rolling sandy hills of the hunting ground before me. A group of men clad, not in the neutral leather jerkins of the people of the hunting ground, but in bright uniforms of a peculiar electric magenta, were marching through the scrub. I noted that they wore close-fitting metal helmets with nasals* and neck-pieces and carried shields inscribed with some device. As I watched, I could catch the motion of others to left and ahead of the party, scouts thrown out to guard them against surprise. Then one in the center of the group, who wore a crested helmet as an indication of authority, turned to speak to one of the others, and I saw it was Ashembe!

The picture was already beginning to fade when, remembering my experience with the dinner, I leaped forward and found the little stud at one side of the panel. I turned it; the picture came back in full strength, and I was watching the expedition to the Shoraru.

I suppose my crude earthbound taste made me expect some dramatic action—a flight of arrows from the forest or the quick leap of one of those fierce carnivorous animals that had attacked Tandana Kabu. In actuality there was nothing of the kind. Ashembe and his guard simply marched through the forest glades without pause or interruption. Once there was a flicker of motion among the trees at one flank, but it proved to be only one of the scouts who had killed some small animal and was bringing it in to hand to the main guard. Half an hour of watching this uneventful progress was plenty. I turned the stud.

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*The noseguard of a helmet.

Workmen, now, handling a tall, intelligent machine at the top of one of the cities. They were placing moulds of various shapes in position and as they did so, the spout of the machine discharged a viscous, shining material of a pale yellow color. I let the picture fade out to one of a seashore and white-winged boats speeding across an ocean as clear and blue as a sapphire. A voice accompanied this picture and a shadowy pointer appeared across it to indicate one of the craft. Then this too, faded.

Apparently this was the Murasheman version of a newspaper, with the difference that you saw the events taking place. I wondered how they reported accidents as picture after picture flashed across the screen without making any deep impression on me. This, like the play, would do for a little later. I snapped the key off and turned to the next one.*

CHAPTER XXX

A HIGH narrow panel revealed a row of little pull-tabs with letters on them. I pulled at one and a thin sheet of metal attached to a spool somewhere, came running out. It was covered with Murasheman characters arranged in columns, and as the first character of each word appeared the same, I guessed it was a directory of some kind. Probably a telephone directory.

By this time I was learning how things worked on Murashema, and anxious to try the device out I looked for the inevitable studs. I found seven of them at one side of the directory rolls, each marked with a character or two. Working on the analogy of our own telephones, I turned them all in succession, some to one point and some to another.

The result was not long in arriving. The panel of the directory slid to with a click, another and larger one opened. On the metal screen appeared the picture of a room similar to my own living room. At the moment it was vacant, but as I looked, the door at the bedroom side snapped back and there emerged an exceedingly fat and pink gentleman dripping wet and with a long red robe clutched around him and an expression that could not be mistaken for one of pleasure on his face.

He looked so much like a Thanksgiving Day pig, trussed up for roasting, that I could not forbear a burst of laughter. The irritation in his countenance increased, then changed to bewilderment; he said something and began to make motions which indicated a desire to decapitate me. I hurriedly turned the key that shut off the screen.

The next key in the series gave me nothing but a blank screen and a voice which repeated some question several times in a tone that grew increasingly querulous as I failed to reply and finally shut off altogether. The next key proved to be for the door into the hall, but I was afraid of being locked out and I was not anxious to explore the building.

The next key brought a gust of fresh and invigorating cold air, but the remainder were a complete wash-out. There was one for cleaning the room (which, of course, I turned on with the same blissful ignorance I had expended on the one in the dining room) and one for drying it, a key that showed an empty panel which slid back on an equally empty dumbwaiter. There was a row of studs beside this one, probably for ordering various objects, but in my ignorance of their purpose I might have brought anything from a royal Bengal tiger to a grand piano into the room *via* this route, and I did not venture it.

This exhausted the resources of the living room and the dining room was already pretty well used up. There remained the bedroom. My first attempt here met with a reception that was dampening in both senses of the word. The bedroom door closed with a click, panels in the ceiling slid back with another, and I was treated to the Murasheman equivalent of a bath—a quick shower of hard, driving rain that wet my ragged clothes to my skin and filled the room with a couple of inches of water before I was able to turn it off.

In a moment or two I was shivering; the air was distinctly chilly by our standards, and I did not quite dare to peel off my clothes in view of the efficiency of the telephone system. The moment for an appeal to an attendant seemed to have arrived.

Leaving little puddles where my shoes squished on the floor, I walked across the living room, turned the second key and waited.

Not more than five minutes later one of those disembodied voices, which pop at you from all corners on Murashema, said something from the door. I opened it and the attendant entered. He was a little wizened man of perhaps fifty, dressed in sober blue clothes, loose jerkin sleeved to the elbows and provided with a belt and numerous pockets, close-fitting trousers that ended at the knee and soft boots or shoes that ran up to meet the trousers. The shoulders of his jerkin bore a light blue emblem of complicated design, woven into the cloth. As I opened the door, he bent his knees and spread his hands in the gesture of greeting.

"Come in," said I to the bowing apparition. "Dry clothes? Can do?" And I held out the edge of my water-soaked coat. (Pidgin-English seemed the proper thing.)

For answer he produced from one of his pockets a tensal helmet, looser and lighter than the one Ashembe had worn, fitted it on and sat down in one of the chairs, leaning his head back and closing his eyes.

I got the idea. "I want some dry clothes, if it's not too much trouble," I said. "These are pretty ragged anyway. I can arrange to pay for them later, I suppose."

Up he jumped, active as a grig, snapping off the tensal and dashing across the room to the key which gave on the empty panel. When the voice spoke, he answered and a moment later a picture appeared on the panel.

A figure was turning and twisting before a background of yellow and gray not unlike that of the walls of my room. I saw it was a man, dressed in the same Murashema costume my attendant wore, light, loose jerkin, close-fitting trousers and boots. His costume was crimson and white and he was booted and belted in black. My servant indicated the picture with his finger, making a gurgling noise, the purpose of which was apparently to express his extreme admiration for it. A moment later the figure stepped away to be replaced by one clad in vivid diagonals of blue and yellow. My assistant gave a little gasp of admiration and looked at me questioningly. I comprehended that this was a style show, but picture me in that combination! To the obvious disappointment of my attendant, I shook my head, and the figure passed from the screen. I negatived a variety of others until one appeared in a suit of a gray-green with belt and boots in bright blue. It seemed about as sober a combination as could be had here. I nodded and pointed and the attendant, with a look that clearly indicated his disgust for so anemic a taste, turned one of the studs at the side of the panel.

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*With this chapter, Schierstedt's division of the manuscript into chapters ceases. The remainder is written hurriedly, to judge by the script, and as is not unusual with hurried writing, is repetitious to a degree. In some cases the text is so hopelessly muddled that we have not made any attempt to straighten it out. We have, however, taken the liberty of dividing the remainder of the manuscript into chapters along Schierstedt's own lines for ease in reading.

"Your name?" I asked him to fill in the time as it closed. Out came the tensal. "What is your name?" I repeated. "Fixi Hadeg," he said, removing the apparatus; "Biyamo Oksen," and pointed to the emblem on his shoulder. "Hadeg," I repeated, following the analogy of Ashembe's name and feeling a little foolish and slightly self-conscious, added "Good." I had to halt his motion for the tensal to find out what this word meant. We stood grinning at each other and I felt sillier than ever.

A voice at the door announced a visitor and Hadeg hurried to open it to a melancholy looking individual in pale lavender, who pushed a machine from which projected a system of padded knobs. There was a moment's conversation and by means of signs and the unbuttoning of my coat I was informed that they wished me to undress. With a glance over my shoulder at the telephone panel, I did so, while the man with the machine surveyed my hair and beard with a covert interest, picking up each garment as I let it fall and examining the buttons. It was not until that moment that I noted that neither of the Murashemans had a single button visible anywhere.

Once stripped, I was steered to a position in front of the machine. The lavender man turned a key in it, and the knobs, actuated by the machinery within, began to move over my whole body, feeling it to the tune of a portentous clicking within the device. They tickled. Under Hadeg's directions, I turned slowly round, the knobs felt gently down my back, and then still guided by my attendant I thrust first one foot and then the other into holes at the base of the instrument. The man in lavender nodded, shut off his machine and took it out again.

The next question was finding something to do. "Can't I learn Murasheman?" I asked when Hadeg had his tensal on again, "or have you some other means of amusement?"

He nodded brightly, stepped to the telephone-television panel and turned the key as I fled to the bedroom. I don't know whom he called. They had a long conversation, at the end of which he came to get me and, turning to the newspaper key, showed me Ashembe sitting with his men in a circle, eating. By the inefficient method of signs, I was at last made to understand that learning Murasheman would have to wait until the return of my friend. Seeing that I had grasped the idea at last, Hadeg turned to one of the plays, and when I disapproved this, for lack of better occupation, returned to the panel by means of which he had summoned the tailor.

Upon its surface there appeared a row of weapons and armor. To amuse me? I thought, and shook my head again. Hadeg sighed and spoke a few words into the machine. The weapons gave place to a representation of the cubical chessboard Ashembe and I had amused ourselves with on the trip. At last there was something I could understand. I nodded eagerly.

Hadeg turned a stud at the side of the panel and a moment later a clear voice spoke out into the room and he snapped open the dumbwaiter to reveal the chessboard. It was considerably larger than the one Ashembe had made and the pieces were beautifully worked, whether carved or molded, I could not tell. (Though from what I have learned since, I assume they were cast—the Murasheman dislikes the handwork of carving.) In a few minutes Hadeg and I were deep in the game and we played comfortably along until he led the way to the dining room for lunch.

We had hardly finished the meal before the voice from the next room spoke again, and we went to take my new clothes from the dumbwaiter. There was a close-fitting undergarment just short of knee length and of silky texture; the outer garments were simply the boots, trousers and jerkin like those I described Hadeg and the tailor as wearing, with the exception that they were of the color I had chosen and that the shoulder bore a white star, woven into the green of the cloth. Of buttons there was not one. The clothes were secured by a series of tongue-snaps and the belt closed around my middle by the same means.

The fit of the garments was perfect and the boots were of so soft a material that it was more like cloth than leather, though it had the texture of leather to the fingers. Only at the soles were they stiff and even here the stiffness was caused by a greater thickness of material rather than by any difference in the character of the goods.

After lunch we returned to our game. Hadeg beat me, but I had expected it, and at least had the satisfaction of having given him a run for his money.

And thus began my three weeks of waiting for Ashembe's return from the Shoraru. The days were very much alike. In the morning I rose, bathed and had breakfast. Afterward I played cube-chess with Hadeg or (in the later days of the waiting period) let him conduct me to the roofs of the city, there to watch the arrivals and departures of the sport airplanes (the airplane has long been abandoned for business purposes on Murashema). Or I would return to my apartment with him and turn on the newspaper screen to catch a glimpse of my friend and follow his progress through the hunting ground.

I say "in the morning I rose," but before I go on I must insert one remark on a peculiarity that came home to me with double force as the days passed. During the first few days I had slept the regular eight or nine hours of my earthly habit, but also in accordance with habit I stayed awake for fifteen or sixteen hours. The consequence was that I lost time rapidly, and by the fourth day, walking out to the roofs after breakfast, I arrived just at twilight. Later on I fell into the Murasheman habit of five or six hours' sleep, but I never really grew used to it or to the twenty-hour day.

CHAPTER XXXI

HE came one night when I was asleep. I had left the door into the living room open and turned on the cold air current to get the apartment aired out, or I would hardly have heard even Ashembe's voice on the announcer at the door. Clad as I was in the scanty Murasheman sleeping garment I dashed out, snapped up the light-proof shutters and opened the door for my friend.

He was in the full panoply I had seen in the newspaper-screen; suit of bright magenta, set off with black and gleaming with the metal scales of armor; crested helmet and sword. How welcome his face and voice after those days of one-sided conversation.

"Did you get the mercury?" I asked.

"Oh, yes, and it is received with honor," was his reply. "See—" and he pointed to the emblem on his shoulder where an oblong bore an arrangement of blue and white bars with the same white star that I wore below it.

"What does it mean?" I inquired, taking care to point out that I, too, wore the star.

"This emblem," he touched the star, "signifies that I am a guest of the state; an arbiter of difficulties. You have been accorded that rank as a stranger. The other is my name emblem."

"Yes? Tell me more. Does everybody wear emblems?"

"Certainly. How else to know? But this emblem is honorific. In your country you have judges. We have them here also, but to become a judge one must perform an honorific work."

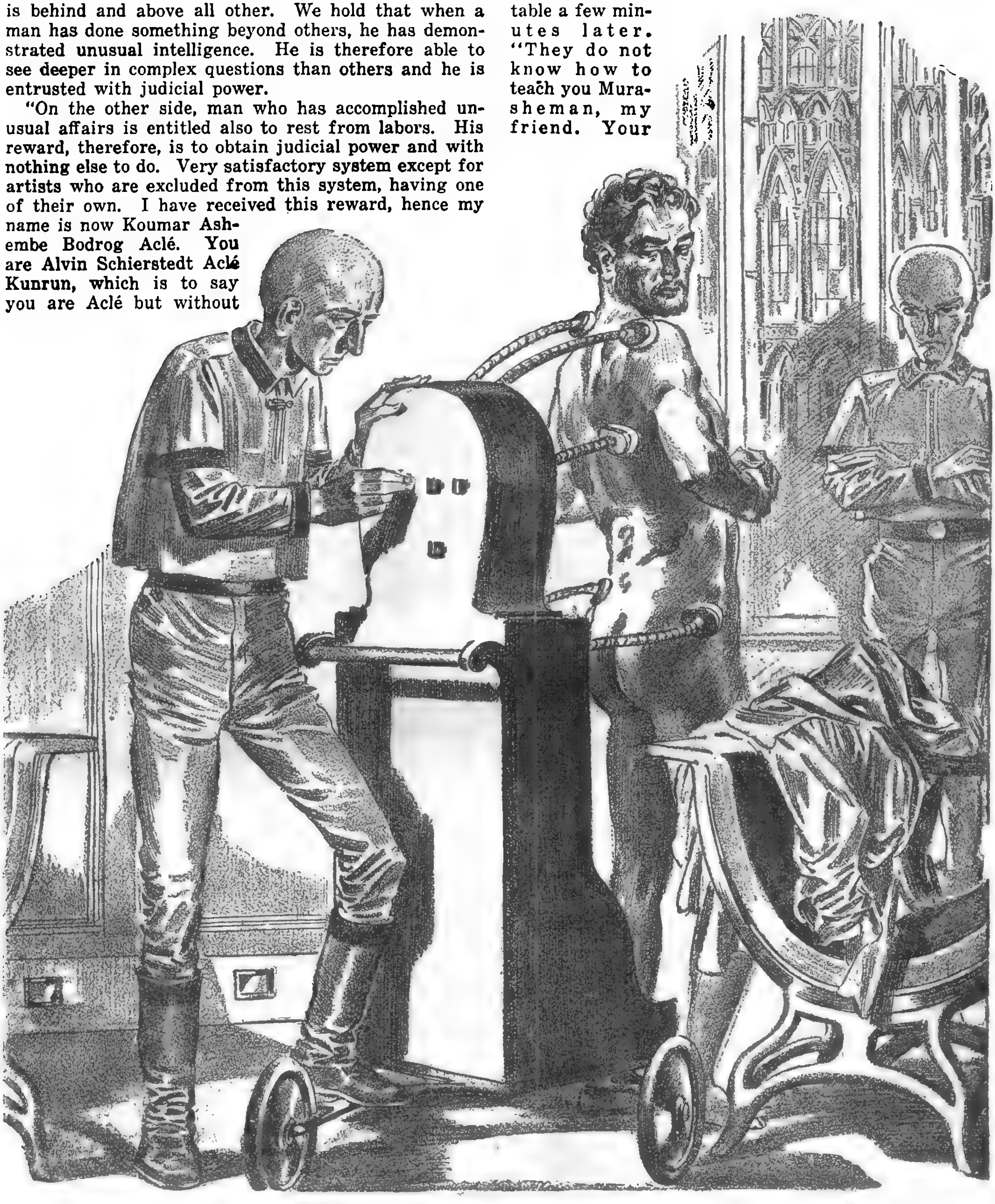
"What a queer system. Why?"

"Attend. All men are desirous of power, also of leisure. Is this not axiomatic? Very good. Administrative powers require special training and are reserved for those with the same. But any man may aspire to judicial powers, which only require intelligence. Moreover, it is more worthy, since in the end, judicial power is behind and above all other. We hold that when a man has done something beyond others, he has demonstrated unusual intelligence. He is therefore able to see deeper in complex questions than others and he is entrusted with judicial power.

"On the other side, man who has accomplished unusual affairs is entitled also to rest from labors. His reward, therefore, is to obtain judicial power and with nothing else to do. Very satisfactory system except for artists who are excluded from this system, having one of their own. I have received this reward, hence my name is now Koumar Ashembe Bodrog Aclé. You are Alvin Schierstedt Aclé Kunrun, which is to say you are Aclé but without authority to make decisions. Tell me, how did you spend your time?"

I described Hadeg, our cube-chess matches and our walks on the roofs of the city, ending with a plaint that I wished to learn Murasheman; and though I had found Hadeg willing to gratify my every desire in other respects, he seemed unwilling to help me with this.

The shadow of a smile crossed Ashembe's face. "Come, let us eat, and I will tell you of it," he said, as we sat at the table a few minutes later. "They do not know how to teach you Murasheman, my friend. Your



I was steered to a position in front of the machine. The lavender man turned a key in it, and the knobs, actuated by the machinery within, began to move over my whole body. . . .

mentality is peculiar, being unlike those of this world and they are uncertain of the effects of the tensal which is our sole education instrument. . . . But I am surprised that he did not take you to museum."

"But how am I to learn Murasheman, then?" I said, pursuing the subject, and passing over his last remark.

"We might teach you through the museum where we have antique appliances of education," he said, "but I may have to teach you the language by oral means. You will not find it impossible. This is a *koia*" (he held up one of the spoons) "and to eat is *dlibotu*."

"And 'with'?"

"Aceff."

"Dlibotu aceff koia," I said, pronouncing my first sentence in Murasheman.

"Aceff koia dlibotu," he corrected with a smile. "In our tongue the verb is always finial. Or better yet, 'Koia dlibotu' since prepositions are antiquarian words, which are dropped by all languages as time grows."*

LESSON and meal progressed together—a better meal than any I had succeeded in ordering in my ignorance of Murasheman cookery—and it was topped off by huge goblets of a pleasing and spicy drink which, without the peculiar benumbing effect of alcohol, seemed to cast a rosy glow of wit and wisdom over our postprandial conversation.

"Now, what would you see?" Ashembe said finally, wiping his lips after the last of the drink.

"Why——" I temporized, running over the prospects of amusement in my mind, and then for the first time lighting with astonishment on the fact that Ashembe was there with me. He must be something of a national hero with his successful interstellar trip and his supply of mercury. A national hero might be expected to be at some public function—or bowing to cheering crowds in the streets—or being welcomed by the authorities. He must have escaped them all, just to spend the time with me. "By the way," I remarked, "did you have a tough time getting away from the crowds?"

He looked up in surprise. "Getting away from the crowds? What crowds?"

"From the reception committee or whatever they call it here."

"Oh, you mean the scientific board. But I was examined by them before, when we arrived. I must, of course, present the complete report of the trip to them for matters of astronomical and anthropological interest later. But that is a long time and I shall dictate the same to an akelshard.† There will be no men to examine."

"But don't you have public receptions and speeches and honors for people who have accomplished noteworthy things here?"

"Honors? Oh, yes, I am made Aclé . . . I told you that. No public receptions."

"But you have practically saved your world, haven't you?"

"No more than many others who have done actions of eminence. I have received my honor; that is sufficient. . . . Ah, I recall seeing the same in some of your books. People on earth crowd around men of accomplishment to see them and shout at them. It is very primitive. What do you wish to see?"

The subject was dismissed. What did I wish to see? "You said something about being surprised that Hadeg had not taken me to a museum. I wonder if I could see one of your museums or art galleries."

"Surely." He jumped from the chair. "But pause. What is an art gallery. Extraordinary I find now many things I do not know of your earth since I left it. Art gallery? An artfully built tunnel? We have them."

"No, a place where pictures are kept."

"We do not have them. Permanent pictures are not considered of art any longer on Murashema, though I believe they did have them in the historical past. Come."

He took off his helmet, then glanced a moment at the armor he was wearing. "Oh, hell, I cannot go into the city so improperly dressed. Pause."

He turned the key in the living room—the one that gave on the blank panel, and when the voice came, said a few rapid words. In a moment came the announcer and he opened the waiter to take from it a suit in magenta and dark grey (sufficiently vivid combination) which, when he had it on, though far from the remarkable fit of the tailored suit I wore, was yet good enough to be considered excellent on earth. The shoulder bore no emblem, but from a pocket he produced one which he attached with one of the tongue-clasps universal there, and we were ready for the trip.

Whether through weariness or excitement, I had hardly noticed the architecture of the building when we came in, several days before, and the trips Hadeg and I had made to the roofs were mere whiskings of an elevator there and back. Now I took the trouble to look. The halls, like my own room had high ceilings and were very light. I assumed quite correctly that the whole outer surface of the building was devoted to living or working quarters. The architecture as a whole was almost Gothic in character, everything being carried on delicate columns which sprayed out above into the most exquisite tracery of fan vaulting around the circles where the lights were fixed.

Colors, subdued to pastel shades, were everywhere. Indeed, one might almost say that all Murasheman life went to the music of color—their dress, their buildings, their appliances, their food even. Walls and columns were softer to the touch than any earthly building material; yet for all their slenderness and surface softness, they carried huge weights. The walls between columns were merest curtain walls at best; those in my own rooms were hardly an inch in thickness, save where they gave on dumb waiters or something of the sort. I asked Ashembe of what material the building was made.

"All architecture is in nickel, chrome, palladium and other steel alloys according to the amount of strain carried," he said, "with some platinum."

"But the surface?"

"After construction everything is coated with a plastic in which colors are placed. Building is done by operations with machines in which the mercury tube forms a part. Proper alloy is made under the tube and at once poured into molds in liquid state."

By this time we had reached the elevator.

"How far away is it?" I asked.

"Next building only. This center does not have a museum. Oh, you do not know—attend. Each building is a living and working center. Living quarters are at the top of the building and working quarters at the base. It is found that living at high altitude induces great energy and better workmanship when worker descends to lower levels. Therefore, all living quarters are at least thirty-five stories above working quarters. Each building is round and is a city in itself. A circle of seven buildings, six around the periphery and one in the middle is a 'center,' all workshops being around the periphery and the central building being devoted to educational and amusement purposes."

"And how many stories to a building?"

"Mostly two hundred twenty. Atargol is a two hundred twenty city, but Ursel Gnyfian at the south pole is a three hundred city and Fornogos in the east is a two hundred eighty city. All buildings throughout the same city are similar."

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*A curious little detail of proof of the genuineness of the manuscript. Languages do lose their prepositions as they grow older (the Chinese has none at all)—a fact which could hardly have been in the possession of anyone "faking" such a narrative.

†Akelshard. Meaning obscure. Not mentioned again in the narrative.

"At the south pole!" I said. (We were going down in the elevator.)

"Surely. Why not? It is waste of space to build cities on lands that might produce products or be used for otherwise purposes. The poles are useless, therefore we build cities on them."

"But doesn't it cost a lot of energy to produce the heat for them? I should think that with the weakness of your sun——"

"But our sun has been so weak for so long that it would be insufficiently warm in almost any city. We have for long foreseen its extinction. All cities are completely lighted and heated by artificial means and it takes very little more at the poles than other places."

"How do you heat your buildings?" I had seen nothing resembling heating apparatus of any sort.

"The architecture is tubular in construction. Even between your walls there is a slight space as sound deadening device. Heat is applied to currents of air which circulate through the building. Very simple."

"Should think it would dry everything out. Heat through metals is supposed to be drying, isn't it?"

"Oh, it is proved that dry heat is more healthful. There are less bacteria in dry heat. However certain small amounts of humidity are supplied through the cleaning tubes. Enough remains in the atmosphere of the rooms after washing to humidify the atmosphere. You have a prejudice in favor of extreme dampness from your planet where it rains perpetually and you have large oceans of water."

We had reached the level where we were to cross to the next building, and I stepped out after my conductor on a spidery flying bridge high above the level of the street on which we had entered the building. Down the long vista between the structures I could see cars, like the one we had arrived in, passing back and forth, and the clear glassy walls of the buildings rising far above into the hazy distance where the roof of the city stood. A moment more and we were again indoors, passing down a corridor.

And here I must note another curious feature—the almost universal silence of those Murasheman cities. Down at the ground level (if it were the ground level and not an illusion) where we had entered, there was a clamor of tongues and sounds; further upward, it sank into a hardly distinguishable murmur.

CHAPTER XXXII

We paused before a door. "Would you like to see instruction of children?" Ashembe asked, and when I nodded, turned a key and slid back a panel.

We were in a long, wide room, its ceiling carried on brackets instead of the fairy arches of the halls, its walls cheerfully decorated with mechanical designs of a somewhat less intricate character than those of my room. It was filled with rows of little cots. On each lay a child, clad in a single garment that stopped at the thighs. They all seemed to be asleep and every child had on one of the tensal helmets. From an unseen source a voice was speaking, slowly and carefully enunciating every word.

"This," whispered Ashembe, "is a schoolroom for the Hetheleg, the manual workers. They are now having a geographical and historical lesson."

"How long do you keep them in school?" I asked.

"As long as the child can continue to absorb information without strain. Two hours a day is sufficient for all lessons, however. You see, everything is learned by use of the tensal. There is no repetition."

"And the parents of these children? At work?"

"Certainly, or asleep, or doing what they like. Do children still live with parents in your country? I remember. It is not so here. All parents may keep children as long as they wish, but few do so. It is very old-fashioned. Parents are thus under heavy expense; besides it keeps them from forming new friendships, for while parents have children living with them, they are not free to find new friends."

"But who takes care of the children?"

"Most care is automatic like this. The Biyamo give what personal attendance is needed. Hadeg is one."

"It all sounds heartless."

"Heartless? What is this word? It has to do with passions, perchance. We have outlawed passions."

There was a step behind us. I turned to see a pale womanish face above a brown suit whose shoulder bore the same emblem Hadeg's had. The owner glanced at us, glimpsed the stars on our shoulders with something like awe, and passed into the room to the end where she began to remove the tensals from the children.

"Come," said Ashembe, "the study hour is closed. We will go to the museum."

We passed down the hall to another room. It was dark within and the darkness made it look so low that I involuntarily ducked. It was not until my eyes became acclimated that I realized the size of the place. To left and right galleries ran off around the arc of a circle so enormous that the room must have occupied the entire center of the building—a space nearly as large as a city block. Overhead a tracery of metal indicated another room like the schoolroom.

"What do you wish," asked Ashembe, "These are all educational exhibits. You can have an astronomy exhibit or history or biology or anything."

Astronomy would be a little too much. I had had enough of that to last a while. "How about a biology exhibit?" I said. "Did you ever have dinosaurs and that sort of thing here?"

"Reptilian forms? They come early in the series. I will show."

He led the way down a darkened passage at the side of the central room and turned a key in an invisible panel. I found myself in a room not unlike one of the intimate theaters that were the fashion when I left New York. There was a dim light around the stage at the lower end of the room and we had entered behind the uppermost row of tiered seats. We seated ourselves (there was no one else in the place) and Ashembe turned the key that projected from the back of the seat before him. A panel slid back soundlessly and we were looking at a picture of an open, desolate plain, covered with cactus-like growths and bunches of heavy, dusty grass shimmering under a sun of tropical intensity and reaching back to a range of distant mountains.

"Why, it's marvelous," I said, admiringly. "It's almost as though the picture had three dimensions."

"It has three dimensions," replied Ashembe. "All our exhibits have."

Presently, from one side of the pictured landscape there stepped forth a creature as strange as a madman's dream. It was sandy yellow in color, spotted with green and brown, somewhat like a big lizard in form, if one can imagine a lizard with a huge frill like an umbrella projecting from its neck. It had curiously short legs, and held them in bent position as it ran, with quick light steps toward a tuft of the grass at the center of the scene; then rocked itself up and down on its limbs, turning its head this way and that as though looking about for danger.

Apparently it saw none; lowering its head rapidly, it began to feed on the grass, and as it did so, another animal, smaller and so swift of foot that I hardly caught a glimpse of it, dashed out and off at one side of the picture. "Fahit nexar; ha'ag," said a voice and fell silent. I looked at Ashembe. "These are the names of the animals," he said. "Attend."

At the right of the scene I caught a glimpse of another animal, a glimpse and no more. But I had seen a low, ugly, crocodilian head, a row of savage teeth in that instant, and I knew that I was watching the hunter and the hunted. The first animal went on feeding quietly. Suddenly it paused, lifted its head. The frill at its neck spread and swelled, standing straight up, and then it leaped for safety. But it leaped too late. There was a sudden vision of a jumping figure, a brief moment of struggle, and the frillneck was groveling on the ground, its back broken, while the other bent to tear a great piece of flesh from the quivering body. "Lectodya," announced the sound device dispassionately.

Save for the accompanying voice, the scene had hitherto been without a sound. Now there was a sudden fierce hiss from the cactus-like growth in the rear. The lectodya paused in its banquet and stood at gaze in the direction of the sound. From behind the growths came another animal, like the others, flat-bodied and marked with spots of tan on a background of mingled colors. Its little head and high-placed eyes bespoke a bestial lack of intelligence, but it had long savage teeth and one could actually hear the rustle of the claws on the sandy soil. But the strangest feature of the beast was the double row of bony spines that projected from its back, and as it sidled hissing toward the lectodya, these spines rose and fell with a rhythmical movement. "Oughlipi" said the voice and the two ran together with quick pattering footsteps. For a moment they were in contact, snapping and clawing; then the lectodya had enough of it and turned to run. The other leaped for his back; almost, but not quite missed, striking the long narrow tail, which broke off close to the lectodya's body and snapped around on the ground with a motion of its own, the oughlipi struggling fiercely with it. The sound device made a few remarks and the picture faded.

"How do you do it?" I asked Ashembe. "It's the most lifelike thing I ever saw.

"These are merely educational devices for older children," he informed me. "Not difficult to make. It is all mechanical. Same thing will be repeated for the next visitor. Some of the better ones, such as good histories, are the work of great artists. You should really see them. This is a representation of conditions during our age of reptilians."

He turned the key again and the panel slid back on an altogether different scene, on which another drama of blood and death began to unfold itself. For the best part of three hours we must have stayed there, with the spectral voice from the wings describing each scene. We saw these dragons of old time through their lives, emerging from the egg, struggling through the dangers of youth, pairing and bearing and finally run down by younger and stronger beasts, or dying of mere old age in some deserted corner. After I had gotten over my first feeling of awe for the wonder of the Murasheman craftsmanship, I began to find the spectacle depressing. It was all so desperate, cruel and hard. These animals were changing for the better perhaps, but they were rising on a pile of bones. Death stalked through everything.

At last I shuddred openly at some particularly gruesome slaughter. Ashembe glanced up quickly and then shut off the key.

"You grow weary?" he asked.

"No . . . but are they all as bloody as this?"

He looked at me in plain non-comprehension. "You object to the deaths?" he asked slowly, turning over an idea new to his experience.

"Well, I suppose I'm a bit of a humanitarian."

"Humanitarian? I do not know the word. Curious . . . but I forget. You are behind us here. You belong to a sentiment age. In Murashema we have long discarded such things. Death is the normal end to life."

"But is that all? Don't you believe in anything higher than humanity, any after-life?"

He laughed. "Oh, you mean primitive religion. No. we do not have such manifestations. I believe the Biyamo maintain some superstitions. Some of the philosophers comment on them. But we of the Bodrog class know better. The body is only a series of chemical reactions, which include even the thoughts. When the chemical reactions stop or go wrong, that is an end. That is all"[*]

"We are brought up to a different conception. We believe there is a higher power directing the universe.

"It is possible, but we have accepted the fact that this is something we cannot know about. Only we know that this higher power, if there is one, has established certain laws by which the universe is guided. Everything goes in accordance with these laws. A power so huge as to frame so great a universe cannot possibly be in the least interested in such infinitesimal pieces of matter as ourselves; or if it is, is interested in us as a mass and not possibly in any individual or group."

"Then you don't believe that the individual should allow his action to be influenced by the fear of favor of this higher power? What basis have you for ethics?"

He laughed again. "If such a higher power exists, what we do is as indifferent to it as what a bacterium does is to us. If the bacterium is noxious, we exterminate it, that is all. Nothing that the bacterium does has the least influence with us. It must be so between us and any higher power. As for ethics, what are they? Systems of conduct, not so? We have them not here. We know that the Scientific Board has removed personals of criminal tendencies and we tell truth. Lies are the basis of all infringements of ethics."

CHAPTER XXXIII

"I OMIT taking you to any of the historical exhibits as yet," said Ashembe as we stood in the corridor, "because you lack knowledge of our language . . . but—I am reminded." He glanced at his watch—a bracelet encircling the arm just above the wrist with characters that ran right around the bracelet and an inner circle that moved past an indicator.[†] "I am to bring you up before the Scientific Board for Examination and Adjudication in two periods."

"By the way, how long is two periods?" I asked, "and what is your system of time? And do your scientific boards sit all day and all night? I find people going around at whatever hour I come out; I noticed this when I was taking walks with Hadeg."

"Your questions are too many. Certainly our scientific boards sit all night and day. How else to get work accomplished? It is not always the same members, some come and some go, but there are sufficient numbers on duty. Scientific board members must work or cease from their positions."

"That's one question. How about other people?"

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[*] In view of this extreme mechanistic philosophy on the part of the Bodrog (or some of them) what follows later is not surprising. But one wonders whether Schierstedt's reporting of this conversation was not colored to some extent by after events.

[†] A good example of Schierstedt's most muddy style of description, which gains more and more control of him in the latter part of the narrative. This particular passage is well-nigh illegible in the manuscript. Apparently he is describing a handless time-piece with figures which run past a point, like the indicator of a modern radio set.

"That also. Practically all labor is process work, involving the attention of highly skilled workers. They guard machines which must be kept going at all hours. Consequently at all hours there are workers of all kinds leaving or going to work. Their hours stop at irregular intervals to prevent traffic troubles."

"Yes, yes. And your time system?"

"Based on the decimal. Our minute is practically the same as yours, though arrived at in different way—by averaging the pulse beats of many normal individuals and allotting a certain arbitrary number of these to a division of time. Twelve of these make a tenth and tenths a 'period.' A period corresponds to your hour, though it is nearly twice as long. Ten periods make a day; that is the time in which Murashema revolves on its axis. Ten days make a 'division.' the tenth being a holiday, and different holidays are for different people. Two hundred and thirty days, or ten divisions, make a year. Our planet revolves about the sun in two hundred thirty-three days, so that every third, seventh and tenth year we add an intercalary division to make things straight."

By the time this explanation was complete we were at my room again, and for the time we had to wait sat down to watch the Murasheman newspaper screen, Ashembe explaining the importance of the various events as each unrolled its pageant before me.

The headquarters of the Scientific Board before which I was summoned were at some distance apparently, for we had a long ride in a two-man car before reaching it. More observing than on the previous trip, I noted that with each circle of seven buildings the architecture changed. Here the tall supporting columns of the building ran up side by side like the mass of some enormous pipe-organ; next would be a series of monoliths with shimmering walls of naked metal, and beyond that a dazzling pattern of geometrical blocks set at crazy angles and blazing with color.

We ascended the ramp to the center of a fine group of pillared construction. Ashembe led the way to a big room decorated in a pattern of varying shades of brown and furnished with a semi-circular desk or table about two feet across, with its face toward the glass outer wall of the room. At the center of this table were two chairs; my conductor led the way to them, seated himself and pointed out the other to me. I was in the presence of the great governing body of Murashema.

Around the outer border of the table were seven or eight more chairs. Only two of them were occupied, one by an old man who was tinkering with an intricate model with shining metal rods sticking out of it, the other by a woman who was working the keys of a calculating machine. Several others were standing about the room in groups of two or three, talking or watching the news pictures that were flashing on one of the walls.

When we came in there was a general lifting of heads and a movement toward the table. I counted nine persons when they had taken their places, all but two of them men. All bore a recognizable mountain-top on the cloth of their shoulders.

Ashembe spoke first, rising and bending his knees before he began. I heard my name mentioned a couple of times and once he pointed to me, then sat down as a buzz of talk rose among my inquisitors. "I have told them," my companion said in a low voice, "who you are and have given them a little about your world. I have warned them that lying is considered customary there, but that I think your statements are to be trusted for the most part."

The Board, all but the old man who had been examining the model, were producing and adjusting tensal helmets as he spoke. When Ashembe finished, the old man turned directly to me and addressed to me a short speech ending with what, from the inflection of his voice, I took to be a question. Ashembe translated:

"With the technical details of your planet we will become acquainted through the report of Koumar Ashembe. They are not of great interest in any case, as it is unlikely that we will visit it again, in view of the fact that our respective suns are moving away from each other.[*] What we wish you to tell is what points in your social and artistic organization are worthy of imitation. I must also tell you that your place in our commonwealth will be determined by your answers."

I caught my breath with a little gasp. "Unlikely we shall visit it again," "your place in our commonwealth"—these phrases struck me full in the face. Ah, never to see the earth again!

"—labor organization that are not clear, and we are unaware whether you may not belong to the remote class of labor troublers," Ashembe was translating. "What is your labor organization precisely?"

"What is your organization here?" I countered, having caught enough of the translation to ask an intelligent question.

"Everyone wears the badge of the class to which he belongs. There are the Biyamo, like your personal attendant; then the Hetheleg, who are the manual laborers; the Davex, who are workers of higher type, such as chemists and political administrators, then the Eodrog, the Aclé and finally the Scientific Board. Artists form a separate class, and below all are the imitative arts performers."

"Oh," I said, "I see. . . . Why, no, there is no such sharp division with us. Manual laborers are, of course, held to belong to a lower class than men in administrative positions, so much so that though workers in certain lines of manual labor, such as bricklayers, earn more than any but the very highest grade of intellectual workers, there is constant difficulty in getting enough of these laborers to supply the demand. I am afraid that manual labor is looked upon as something of a disgrace." There was a stir of surprise among the helmeted members of the board.

"You still adhere to the monetary system?" was the next question.

"Yes."

"How do you select individuals for administrative duties? Are they the men who make the most money?"

"Frequently," I was obliged to confess. "We have what we call democracy. All the people elect the administrators and certain others who pass the laws as well as the judges."

"What is the result of selecting an incapable administrator?"

"There's nothing to be done but wait till his term runs out. They are elected for a short time only. Then we elect a different man."

Another stirring of the figures around the table, like so many carved statues, with closed eyes and composed, frozen faces underneath the tensals.

"Who decides upon the ability of an administrator?"

"The people at large."

"If an administrator is unable, but claims to be able, who contradicts him?"

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[*] It seems almost pedantic to insert a note at this point. But we think it worth stating that Mu Cassipeiae (if this star is indeed Murashema) is moving away from the earth at the enormous velocity of 97 kilometers per second, and at right angles to our sun at a velocity of 137 kilometers per second, according to the latest determinations (Stewart's measurements). Such speeds would appreciably lengthen the distance to be traveled in a short time, even allowing for the immense speeds of space travel attained by the Murashemans. It is noteworthy that Ashembe exhausted all the fuel his car carried both on the journey to the earth and on the return trip, although the latter was made with a certainty of aim that could not possibly have been the case with the former.

As bearing on the accuracy of the narrative, Mu Cassiopeiae is a type G5 star, a couple of million years further along the path of stellar evolution than our sun.

"His opponent. There are usually two or more who wish the same office."

"Why? You said that the men who made the greatest rewards in money were most esteemed. Do administrative positions pay the largest rewards?"

"No. But they like the office, I suppose, and there is something in being paid by the public at large."

"Oh, you have the system of everybody contributing to pay officials. What becomes of the rest of the contributions? In such cases there is always a surplus."

"It is used for various public works."

"And the administrators have charge of these?"

"Yes."

THERE was a moment's silence. The old man said something in which a sneer could hardly be missed. "Oh, but that's not fair," I burst out. "They don't tap the treasury—" The old man spoke again.

"He says you are probably lying," Ashembe translated, "and that your social organization is so archaic that it has no interest. You will be asked to tell more about it later to a specialist in antiquarian institutions."

For a moment red rage gripped me. But the faces before me were as impassive as those of gods contemplating a worm.

"Are artists highly esteemed?" came the remorseless question.

"It depends," I told them, trying desperately to be fair in spite of my annoyance, "upon the degree of civilization in any particular country and what artistic taste it has. There is no complete answer. In general, yes."

"What arts are most high?"

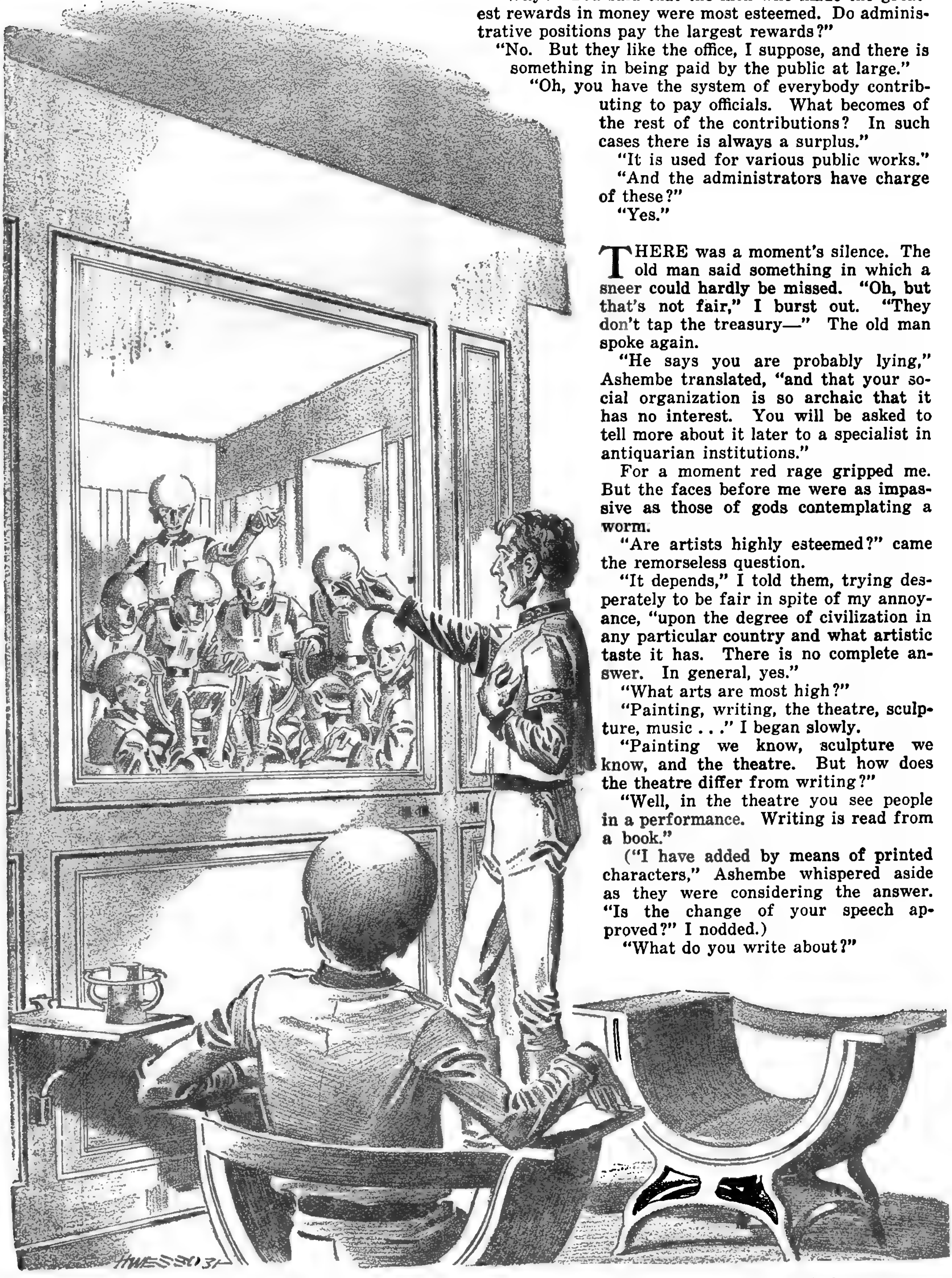
"Painting, writing, the theatre, sculpture, music . . ." I began slowly.

"Painting we know, sculpture we know, and the theatre. But how does the theatre differ from writing?"

"Well, in the theatre you see people in a performance. Writing is read from a book."

("I have added by means of printed characters," Ashembe whispered aside as they were considering the answer. "Is the change of your speech approved?" I nodded.)

"What do you write about?"



It was while Ashembe was giving me my lesson in Murasheman that the first request for my artistic talent came.

"Well, there are history, and philosophy, and biography, and fiction . . . and essays . . . and poetry. . . ."

They seemed mystified. One or two even took off their tensals and held a brief consultation while I relaxed. Finally:

"What is poetry?"

Frankly, I was stumped. (Let any man try to define it.) "Why . . . it's the combination of various words so that they rhyme—no, that won't do—so that they have a musical sound and a certain rhythm . . . and association values . . . and a lot of other things," I finished lamely.

More mystification and consultation. Then "Make some poetry," Ashembe translated.

My stock of memorized verse is not large, although I am fond enough of poetry to have committed most of the pieces I like best to memory. I felt a perfect ass besides. However, I did the best I could.

"There was an old man of Peru," I struck out boldly,
"Who dreamed he was eating his shoe,
He woke in the night
In a terrible fright
And found it was perfectly true."

Again the tensals came off and there was a little buzz of admiration that almost drowned Ashembe's floundering effort to translate the verse for the head inquisitor.

"They are very much pleased," Ashembe reported. "They think your poetry is very fine indeed and a noble art. They wish you to recite more of it."

These queer people actually thought a limerick something extra! My wounded pride mended rapidly under the admiring glances of the august governing body of Murashema. Well, if they thought a limerick was good, how about some real poetry? Encouraged, I swung into the intoxicating music of "Atalanta in Calydon:

"When the hounds of spring are on winter's traces,
The mother of months in meadow or plain——"

I broke down toward the end, not remembering beyond the "Mænad and the Bassarid" line except fragmentarily, but the rendition, bad though it was, was received with a perfectly genuine and quite astounding burst of applause. One after another these rulers of worlds rose and made me the bent-kneed gesture of courtesy which is the highest form of appreciation with them, and when they had quieted down they demanded more.

I think I must have been kept there reciting poetry for the better part of an hour, giving them everything in my repertoire—even some snatches of epitaphs. Everything I offered was received with the same uncritical applause, and when I finally called a halt from sheer weariness they forgot to ask me any further questions and bowed me out with the announcement that I should hold myself ready to receive a special commissioner who would give me full information about my place in the Commonwealth of Murashema.

CHAPTER XXXIV

I FEAR I must pass over the next few periods hurriedly. Like those of a happy people, my annals were brief. I spent my days loafing around and looking at things with Hadeg or learning Murashema under the tutelage of Ashembe in the hours he could spare from his duties in the courts. Of other people I saw hardly any and spoke to none until the day the philosopher called.

He was announced by television-phone as the emissary of the Scientific Board, and I made ready to receive him with something like trepidation.

He turned out to be a tall, thin individual whose pinched-up nose gave him an air of superciliousness and who had the carefully studied precision of gesture and speech of an actor. The thought of an invisible audience seemed never far from his mind; he glanced about the room for approval after every statement. I discovered the reason for this later when it was explained to me that the leading philosophers are in the custom of giving to whoever wishes to tune in on their consultations the benefit of what they are saying to the individual, and that it is quite the custom to connect one's television set with a private home in which a philosopher is talking to pick up the pearls of wisdom that fall from his lips.

He entered mincingly, bent his knees in greeting with a sweep and in a full and rotund voice addressed me in Murasheman. "Man from another world," he said, "you have come across the years to us, freighted with precious gifts of art. Therefore the Scientific Board in its infinitive wisdom has decided to permit you to become a free member of the community of Murashema, although you have a low intelligence rating. Accept my congratulations."

I murmured my appreciation of the honor.

"You have been assigned to the ranks of the Thutiya Volva. (The artists of sound, *i.e.*, musicians.) The rights and privileges of this class are yours."

"Just what are they? What do I have to do?"

"Make further those exquisite sounds with which you delighted the ears of the Scientific Board."

"Oh . . ." (I had given them almost my entire stock of poetry.)

"You understand, of course, that the Thutiya Volva are under primitive organization."

"Just what does that mean?"

"All workers, whether Biyamo, Davex, Hetheleg or Bodorg, are under direction of our glorious commonwealth and do what work is asked by their superiors in the state. In return to them the state guarantees food and clothing and living quarters and recreation; above this the workers must purchase recreation for themselves with labor tickets."

"But not the artists?" (What an autocracy, I thought.)

"Our scientists have long known that artists are individualists; you, no less than the rest. Individualists are of primitive mold of mind and are therefore subjected to primitive conditions. All arts are classified as amusement and are paid for in labor tickets by those who enjoy them. Artists are not furnished with food and clothes by our glorious commonwealth. They must pay for everything in the labor tickets obtained from those who enjoy their arts."

"Isn't that a bit hard on the artists? It seems unfair."

A theatrically adequate expression of horror spread slowly over the face of the philosopher and he lifted his hands before his face. (I noted that the fingers were painted, a form of vanity I found quite prevalent among Murashemans of the upper classes.)

"Are you so steeped in ignorance then that you do not know that the wise scientists who control our great commonwealth are never unfair? They know, they know that if the state furnished livings to artists many persons disinclined to labor would claim to be artists in order to obtain the benefits of idleness. We hold rightly that a genuine artist will be appreciated by other people who will show their appreciation by maintaining him. This method automatically starves out those false artists and forces them to enter work."

"But aren't there any artists who are genuinely good but are so far ahead of their times that they are not appreciated? We have them where I come from."

"Child of another age, do you not know that under a true civilization such as that we have achieved all people are equal in artistic appreciation? If an artist is unable to earn his living by pleasing people, a poor artist he must be. I tell you this for your own good as well; you must please people. The future has no arts as distinct from the present."

(What an ass, I thought. And this was a specimen of the Murasheman philosopher! . . . And no wonder a people who regulated things in this way had no poetry. I wondered what their other arts were like.)

"I see . . ."I said, making a show of agreement. "How am I to get in touch with possible clients for my art?"

"They will search you out," said the philosopher. "It is my recommendation that you give one or two performances at gatherings to spread the news of your arrival. I bid you farewell."

And rising, he curtsied to me again with the stiff sweep of a marionette and left. Half an hour later the television-phone announced that new clothes bearing my emblem were being sent to me, and the dumbwaiter, when opened, revealed them as exact duplicates of those I had been wearing, save that a series of concentric rings replaced the star on the shoulder.

It was while Ashembe was giving me my lesson in Murasheman that evening that the first request for my artistic talents came. The television-phone gave a warning shout, and the panel slid back to show a circle of people seated in a room not unlike my own, one of whom I recognized as a member of the Scientific Board that had conducted my examination.

I gave them some limericks and what I could remember of "Jabberwocky," remembering in time that the tensal helmets the members of the board had worn caused them to memorize the other selections they had heard. As the panel slid into place before the picture of the curtseying group I turned to my friend:

"I'm afraid I'm going to have difficulty if this keeps up," I told him. "I don't know so very much poetry, and they *will* use those tensals."

A curious expression of surprise and horror spread over his face. "What's the matter?" I cried.

"You are not then—inventing these poetry?" he asked.

"Why, of course not. I can hardly write a decent couplet. All I've done is recite some of the best poetry I knew."

He placed his hands on my shoulders and looked at me gravely. "It is contrary to the regulations," he said, "but I am your friend and will say no more of this. I implore you not to reveal it to others."

"Of course not if you think best. But why?"

He glanced around as though somebody might overhear us and then shut off the television-phone before replying.

"Those who create no new art themselves but use the arts others produce are not of the Thutyi Volva."

"What are they then?"

"Has none told you of the Thutya Bunyo? They are the imitative artists who give nothing themselves to the world but only pass on what others have given them. They are of the lowest rank, below even the Biyamo, and their time is mostly devoted to . . . despicable duties. If it were found out you had concealed that you were reciting the works of others, you would be sent to the farms." He shuddered. Then, after a moment, "Attempt to make new poetry; in Murasheman, if you can."

I DID try it, but without any great amount of success. Murasheman would be the easiest of languages for a good poet; it lacks in the harsh s and z sounds of English, replacing them with a vast number of labials. It is entirely monosyllabic. Where a longer word appears it is due to the welding together of a number of monosyllables.* "Ashembe," for instance, meaning "Glory of the time spirit," "ashem" being a compound word signifying "exaltation (ash) "of heart," "em" and "be" being the word for "time spirit."

Speaking of "be" reminds me of the type of philosophy that passes for a religion in Murashema. They appear to hold (that is, the Bodrog, Davex and Aclé do) a belief in an amorphous entity they call "Beyarya," which may be rendered as "the first cause" or the "indestructible spirit of time" in the sense of a spirit of progress. Beyarya is not conceived of as having any interest in mortal affairs. Divine revelation and the idea of a past or future existence as a thinking entity are altogether rejected. Reward or punishment from above are thus conceived of as impossible, and ethics are a matter of individual or state regulation. The principal article in the Murasheman ethical code is that one must always tell the truth. They hold that all misconduct flows out of lies, either of omission or commission.

Beyarya's part in the making of the universe is limited, in Murasheman thought, to having set in motion the chain of events which resulted in the formation of the Murashema and other solar systems. The Murashemans believe that all such systems are governed by a single set of physical laws which are unchanging throughout the universe. In this they find the strongest evidence of a guiding Intelligence. (Their astronomical observations and travels in space bear out this view of a single set of physical laws.) They hold that these laws are never contravened and that all seeming inconsistencies are due to some details of the Universal Law that have not yet been discovered.

They believe that the thoughts and actions of men and animals (they deny the existence of a soul and hence make no difference between men and animals) are controlled by these laws, thus touching on the extreme mechanistic point of view. They also believe that in certain worlds (our own and theirs, for example) there is a definite upward or progressive trend to evolution, and therefore they look upon Beyarya as a spirit of progress. Of the goal of this progress they admit they have no conception.

This is the Murasheman religion or philosophy in its purest and highest form. Naturally their conception of Beyarya as an impersonal and disinterested force precludes any religious worship or any ministers of religion. In the lower ranks of the people and particularly among the Biyamo and Thutiya Bunyo this religion is incrusted with a certain amount of anthropomorphism. There are numerous superstitions and a tendency to elevate certain heroes of the past to the rank of demigods or intercessors with the divine Beyarya, whom they regard as having a more personal interest in the doings of the individual.

This philosophy, as I have said, underlies all Murasheman thought. Nevertheless they have philosophers who belong to the Davex class (intellectual workers) and who elaborate on the fundamental idea and apply its tenets in detail to the problems of the individual. The philosophers are very numerous; they are consulted on all knotty ethical points, and the more fashionable ones receive high prices in labor tickets above the fee the state pays them, though this practice is frowned upon by the scientific boards.

Besides being philosophers, these professional philosophers are acute psychologists—a fact which I was to discover to my infinite cost. Their mission is not merely to solve the ethical problems of the individual but his business problems as well; in fact, to furnish advice at every turn of his life. Every man and woman is compelled to consult them every so often, and if the records, which are kept in great detail, show that an individual has not had his regular philosophic (or rather psychological) examination, the Scientific Board in charge of his city tower sends one around.

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*The direction in which all languages trend; and which will presumably be reached by English in time. Though Schierstedt does not mention it, it is obvious from the samples he gives that the vowels are also shading off in Murasheman; another evidence of the extreme antiquity of the language.

CHAPTER XXXV

THE chain of circumstances that led up to the writing of this manuscript began in August of my year 5. August! The word calls up a picture of a hot and drowsy summer, but August in Atargol City is like any other month of the year, and in the whole of Murashema there is less difference between the seasons than one meets on earth between different days of the same month.

But to get back to my knitting. Through Ashembe I had met another member of the artist caste—Tenengi Anyecso Thutiya Marog—and through him again I was invited to be present at a "gathering." A gathering is, I may explain, the Murasheman equivalent of any kind of more or less formal social evening on earth; they are limited by custom to those of the same caste and class.

It was held in a room larger than any of the apartments I had seen thus far, and the decorations on the walls were of animal motifs instead of the uniform geometrical patterns to be seen elsewhere. Instead of the conventional furniture it held only a number of low divans, about a foot high and nearly as wide as a double bed. A cleared space at the window held a dais, behind which the shutters of the room were drawn. It was the only place in Murashema where I had seen interior lighting. Three or four people were standing about talking as we entered, the shoulders of all bearing the concentric rings of the Thutiya Volva. I was introduced to each.

One of them drew from his pocket a note-pad with a waxed surface on which he proceeded to draw a rapid and unflattering sketch of me, which emphasized my hair and beard. I noted that he used an elongated and carefully trimmed index finger-nail for the purpose.

Commenting upon the sketch, I fell into conversation with him. His name, it appeared, was Ang Redike and he was one of those artists engaged in preparing the backgrounds and costumes for historical "movies" of the same character as those I had seen in the museum.

"I am surprised," I told him, "that you still need to make them. I should think that in a civilization as standardized as yours everything of that kind would long since have become a mere process of mechanics."

"That is true," he said, "but there are always more to be made. Events which may seem small have big consequences. Thus there are not yet showings of explorations in space by the Bodrog Fotas, but now that Ashembe, your friend, has succeeded in finding mercury, that subject is important and must be illustrated."

"And you sketch me for that?"

He smiled and nodded. "We have no difficulty with most things of your world. Koumar Ashembe's reports are good. But your appearance is strange. . . . You must have many violent men there."

"We have," I admitted briefly, and then to turn the subject, "Why haven't they shown interplanetary exploration before? I should think it would be of the utmost interest."

He glanced about quickly, then regarded me for a moment with an intent scrutiny. (Extraordinary result for so mild and polite a query! I thought.) Then, lowering his voice, "They were failures," he said briefly. "The suicide associations."

"Suicide associations? What are they and what have they got to do with interstellar travel?"

Again the apprehensive glance and then, taking me by the arm, Ang Redike led me to one of the divans at the side of the room. "It is not permitted to discuss the subject," he told me in a low tone, "but I will tell. . . . There are those who believe we have a dying world; they began to form the Associations of the Grehm (I can only translate this as "the hopeless," though it also signifies "the helpless") before the last revolution. They believe that we exist only for pleasure and that the final pleasure is death.* They refuse to do labor, doing nothing but holding gatherings and carousing, and at each gathering some member of the Grehm is put to death."

"Yes," I said, "go on. . . . Why are they so serious?"

"Before the last revolution they had almost complete control. It was not discovered then that energy could be released with the mercury tube." He shuddered a little. "The Biyamo and Hetheleg got out of hand and gave themselves up to laziness and carousing. Idon city was ruined and several others. No work was done. . . . Then the scientific boards found the mercury tube and began to put down the Associations of the Grehm. They established the eugenic regulations then to prevent the Biyamo and Hetheleg from becoming too numerous and send all the Grehm they could find to the farms."

"But there are still some left, I take it?" I said.

"Yes. . . . They influence the Biyamo and Hetheleg badly. We fear sometimes that all will cease work and civilization fall. Therefore the Scientific Board does not permit any exhibitions of scenes that do not end in success. . . . They make constant investigations through the philosophers also. But there are even philosophers in the Grehm." He shuddered again.

"But I should think it would be easy—" I began. He stopped me with a gesture. Some one was approaching.

Before the introduction could take place, however, there came the sound of a soft, sweet-toned bell from the upper end of the room. I looked up to see that it had gradually filled with people, men and women, all comparatively young and nearly all bearing the concentric rings of the Thutiya on their shoulders.

The bells (I now perceived there was a series of them hanging from a rod) were being played by a performer with a small padded mallet; some subtle, wordless air, without melody, but singularly pleasing in its rapid changes of tempo and tone. A moment later a very soft wind instrument struck in, high-pitched and clear. As the two played their duet a man, standing at the side of the dais, stepped upon it and began to move through the complex figures of a dance. It was all new and rather wonderful to me, but I noted that Ang Redike was bored, and though the rest in the room were listening and watching, they were doing it with an air of politeness rather than with one of enjoyment.

A few minutes later, as the performance finished on a series of repeated high notes from the wind instrument, one or two persons stood up and curtsied in acknowledgment, but most of the audience merely returned to their interrupted conversation. I turned to my companion.

"They seemed good to me," I remarked.

"Merely Thutiya Bunyo," he said disparagingly. "Wait till some of the Volva begin. Ah!"

A short man, with a round, cherub-like countenance, was making his way to the dais, a painted box about the size of a suitcase in his hand. He looked about the room, nodded a greeting here and there, opened his box and sat down. Some one at the back turned out the lights, and before my eyes had gotten used to the dimness I saw a pale green, ghostly radiance began to grow from the box. It rose like a note of music, becoming more and more brilliant, and then dying slowly away to an intense blue tone that seemed to penetrate the very walls. Then abruptly the blue was shattered by three vivid orange flashes, so bright they seemed to have material body, and before the last one had died out color on color flowed from the box, inundating the gathering with a wild melody of tints. Here a face would be picked out by a sudden white shaft to fade into dimness in purple shadows; a series of chords in red ran around the room. . . .

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*A remarkable parallel to the Nietzsche-Schopenhauer scheme of philosophy. It is noteworthy that similar bodies were formed, and a similar philosophy was prevalent in the decaying days of Rome.

I FEAR my best efforts at description are quite inadequate to tell the beauty of this singular color-organ in the hands of the artist. He used the room and the people in it as his material. The lights sought them out, here and there, focusing the eyes of all present first on one and then another, and so cleverly did the artist manipulate his keys that in each case he seemed to accent some feature that brought out an essential bit of character and follow it with what might be described as notes in color. One *felt* rather than saw that he was describing the people. For a moment the light was on the face of the host of the gathering, and by some alchemy of the color organ he was gay and laughing; the next it played on Ang Redike, and his face was too sad for tears. It is as impossible for me to express in words what he was doing as it would be for me to manipulate the instrument.

As the lights went on again at the end of his performance, a low murmur of appreciation ran round the room, and almost as one person we stood up to express our appreciation to the little apple-faced man. I felt that I had passed through an emotional experience.

"Who is he?" I whispered.

"Thase Tobong," answered Ang Redike. "He is a good artist. You think so?"

"Wonderful," I agreed. "We have nothing like it——"

"And we have nothing like your art. But then every artist creates his own art to a degree. Come, they wish you."

To my embarrassment I saw that people were staring at me and the host of the evening was approaching. It was a nervous moment. My previous audiences had all been Bodrog, that is, scientist of one kind or another, men no doubt brilliant but lacking in artistic sense, at least if they were anything like those on earth. (I remember old Professor Burton, one of my clients,* a splendid biologist and a delightful old soul who thought Laura Jean Libbey ranked just above Shakespeare.) But now I was among a gathering of artists, people accustomed to the arts and able to tell at once whether anything was wrong. Surely they would see through me. . . .

At all events, I gave them the best poetry I could, inwardly blessing the high-school teacher who had made me learn Marc Antony's oration over the body of Cæsar by rote. It saved me and postponed the calamity, and I found myself bowing and blushing my thanks for more unearned applause.

I was followed by a violinist (I call him a violinist to give some idea of what he was like in familiar terms), who played a long instrument with strings that spread out fanwise from the point where they crossed the bridge at its base. He apparently depended for his tone not so much on fingering (the strings were too widely spread for that) as upon exquisitely careful bowing. The resultant music was fundamentally much the same as that I had heard on my first day in my own dining room, high-pitched squeals, utterly lacking in any sort of charm for me.

There were more entertainers—Ang Redike himself, with a series of sheets of some white material and a box of liquid colors which he sprayed upon the sheets through stencils of adjustable size and shape to form cubistic portraits of those present—crazy geometrical things which nevertheless were striking likenesses of the subjects of the portraits; a wind instrument player, more dancers and an emaciated individual who demonstrated with lightning rapidity a complex series of manœuvres in the cubical chess game Ashembe and I had played.

But by the time this last performer had taken his place on the dais I had begun to notice something peculiar about the room. There was a faint but perfectly definite odor, not unlike that of the piney slopes of the Adirondacks, most peculiar of smells for that far place.

Again I turned to Ang Redike. "What is that—" (What was their word for odor? For lack of it I wrinkled my nose and sniffed expansively.) He turned a glance of faint surprise toward me.

"You do not know the gas?" he asked. "What do they do for intellectual stimulus on your earth when they hold gatherings?"

"Why, we usually drink liquids containing alcohol," I said. "Although when I left there was effort on foot to prohibit such drinks."

"Alcohol! How curious!" He laughed in the polite chuckle, which is all the cultured Murashemans allow themselves. "But alcohol has lowering physiological effects, has it not? It is a poison."

"In sufficient quantity, I believe," I said. "Although it is a matter in dispute on our earth. There are parties for it and against it. Those in favor of it are called wets and those opposed drys." (The odor was becoming stronger and even a little dizzying.)

"Wets—ha, ha!" said Ang Redike, lolling back on the lounge. (What ailed him? If I had not felt such a sense of lazy comfort, I would have asked.) I looked about. Was it my dizzied senses or was the room really a trifle misty? The lights seemed dim and the last of the performers had ceased. A little hum of conversation mingled with the gurgling laughter of the Murashemans.

Ang Redike sat up suddenly. (Odd how he seemed to be swimming rather than moving in that misty and uncanny light.) He whistled and motioned with his arm and then sank back as though exhausted. I would have sat up myself had it not been too much of an effort.

Besides, it was dizzying to sit up.

Through the light, now foggy, of the room two figures swam toward us, women with the thin, triangular faces and regular, delicate features one sees in the paintings of the pre-Raphaelites. I noted with a mild surprise that their shoulders bore not the circles of the Thutiya Volva but a tiny representation of a human figure on the background of a fan, but it was almost too much effort to conjecture that they must be Thutiya Bunyo. And for them, too, the effort of movement seemed considerable. The odor in the room was permeating everything, and it was a delight merely to breathe it.

One of the girls seated herself by Ang Redike, the other by me. The mist in the room became thicker and thicker, the odor more permeating, till one sank in a delicious languor in which one could not see one's hand before one's face. A throaty gurgle dying out into a sigh of pleasure rose somewhere in the room. The girl beside me flung an arm around me, laid her face close to mine. I looked for Ang Redike, six feet away, but the mist was too thick; I could not see him. Again the throaty gurgle of pleasure somewhere in the room.

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*Another check on the accuracy of the manuscript. The Educational Directory shows that a Professor A. M. Burton was head of the biology department at Galton College about 12 years ago. He is now dead.

THE light was streaming through the opened shutters. I moved slightly, trying to remember, then did remember and sat up with a jerk, feeling the back of my neck where the headache ought to be. To my surprise there was no headache at all. I felt glorious as though I had energy enough for anything. I looked about. Mist and people were gone—the room was empty save for the huge divans, a couple of articles of clothing on one of them and Ang Redike standing over me, smiling.

"Come," he said. "I must continue my work and there are probably calls waiting for you also."

I looked around again. "Where has everyone gone?"

"To their places. I allowed you to sleep."

"You needn't really have bothered. . . . Tell me, what made that mist in the room last night and the odor?"

"The gas. You do not know the gas?"

"No, we have nothing like it but alcohol. Doesn't it have any after-effects? I don't notice any."

"You mean ill after-effects? Certainly not. The Scientific Board would not permit it to be used. Let us go."

CHAPTER XXXVI

SO these (I meditated when I had reached my apartment) were the Thutiya Bunyo and the "despicable duties." And this was the class I was escaping by the ignorance of the Murashemans and the grace of Ashembe. . . . And the Associations of the Grehm. . . . .

My thoughts were interrupted by a shout from the television-phone, which proved, when answered, to be the secretary of the local Scientific Board with the information that since I had not called on a philosopher for three periods they were sending one around.

It proved to be the same thin and theatrical gentleman who had visited me before.

"Man of another universe," he said, as he entered, "I have read the secrets of your heart. You have not sent for me; therefore your mind is troubled with some unnameable trouble. I admit it is difficult for us to understand one another, but such as we are, voices calling feebly across vast spaces, let us try to arrive at a communion of minds. I implore you to open your full heart."

My heart misgave me at the thought of trusting this sententious sounding board of a philosopher with my secret. "There are some things I wish to know," I admitted with a show of reluctance, "and my friend Koumar Ashembe seems unwilling to aid me."

"No true man is unwilling to aid another," the philosopher answered, pat as you please. "The truth makes free by slaying errors of mind with its intense white light; yet all men know that day is hard and twilight comfortable, and one who has climbed the difficult heights to understanding is loath to draw his comrades from the pleasant dusk of their little vices and ignorances. Hence your friend is not to be blamed that he did not earn your hatred by rousing you from a sleep you find so pleasing."

Words, words—as bad as any Dr. Frank Crane of earth. However, one more try before I tossed him out, I thought. Aloud I said, "The specific question is this . . . it's a little hard to put into words . . . It's a general question. Why, in a civilization that has progressed as far as yours, do you allow such a class as the Thutiya Bunyo?"

"Ah!" said the philosopher, bringing the tips of his fingers together in the gesture of Sherlock Holmes, and elevating his thin nostrils. "Ah!" He swung an accusatory arm at me. "You have been attending an artistic gathering and inwardly are somewhat ashamed of your attendance, and of the attraction that the Thutiya Bunyo, or some one of them, holds for you. You are also slightly desirous of a recurrence of the incident, shameful but pleasant. Do not fear on this account, you are yourself of the Thutiya, and no odium attaches to you for this. . . . But——

"I would judge that you have no similar class in your own planet or that you did not belong to it if you do have such a class. But let me assure you that in the eyes of the divine Beyarya you need not fear; you are exempt from mean scruples, which are for a range of men far below the attainments of the creative artist. You belong to an exalted class which demands great passions and fiery reliefs from those passions, and any amount of license is permitted to you. Your only care should be to produce your art."

I started in amazement. Too late, I remembered Ashembe's remark to me, so long ago, that the philosophers of Murashema were also its psychologists, and that psychology had been reduced to an exact science.* Stripped of the flowery language, the philosopher had in fact, given me a most accurate reading of my own psychology.

The philosopher lifted a supercilious nose. "You are thinking that I have talked to your friend, the Koumar Ashembe Aclè," he said. "It is not so. Your psychology is of a simplicity absurd; all artists are either excessively simple or complex of mentality; sometimes both combined in one individual. But never are they of the puzzling average. The springs of your being lie close to the surface. But pause!" He pointed one hand toward the ceiling and shaking the skinny forefinger of the other under my nose with a theatrical gesture, continued, "There are indications that you were only recently raised to the state of the Thutiya. In the name of the divine Beyarya, I abjure you—is this not true?"

If I told him, would I not be degraded to the ranks of the Thutiya Bunyo? "Despicable duties. . . ."

"No—no," I told him, looking him straight in the eyes.

His head jerked back in surprise; the pointing fingers came down—but even here his movement was smoothly theatrical. "You are to be felicitated," he said, "upon an extraordinary prudery of mind in that case. You will become a very great artist, or at least a very original one, with so remarkable an equipment. It will give you a singular, if not attractive, outlook on existence. But as for your question the reason I have stated. You are half ashamed and half delighted with the gathering you have been attending."

"True," I said, "in all probability. But why do you tell me this?"

An expression of surprise spread over his features. "Is it possible that you do not know? You are here to be assisted; I am here to give assistance. The need for philosophical assistance is caused by a condition of mental stress. The assistance of a philosopher is given by analyzing the reasons behind the stress; when they are found and their triviality is made apparent, the stress disappears. Under such conditions the question you ask becomes academic and unimportant."

"But as a matter of interest," I persisted, "why do you have the Thutiya Bunyo?"

He struck an attitude of intense thought almost grotesque in its likeness to Rodin's famous statue. "The deepest reason is their usefulness to the Thutiya Volva and to a lesser degree to the more intense spirits among the Bodrog. There are certain types of workers who require violent passional activity as a relief to the intensity of their mental labors and who are yet so unsocial they cannot tolerate permanent alliances. . . . The Hetheleg Arboath are at work on a modification of the tensal treatment that will preserve artistic tendencies unimpaired while removing unsocial qualities. . . But," and he fixed me with his eyes, "there is still something unsettled in your mind or you would not have asked that. Tell me, I implore you, why you thus seek to turn the conversation from your own case, which is the reason for my presence? Between us, you and me, there can be nothing hidden."

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*Bearing out the view of certain German scientists that the main improvements possible in our civilization are mechanical developments of what we now know and improvements in psychology.

"Well," I admitted, "there is something . . ." I groped for words. "From what I know of your astronomy—I don't see why, if there is a controlling intelligence in the universe, it causes such a vast waste of material and time in producing . . . so insignificant an animal as man. Think of all the dead worlds and those on which life was never born."

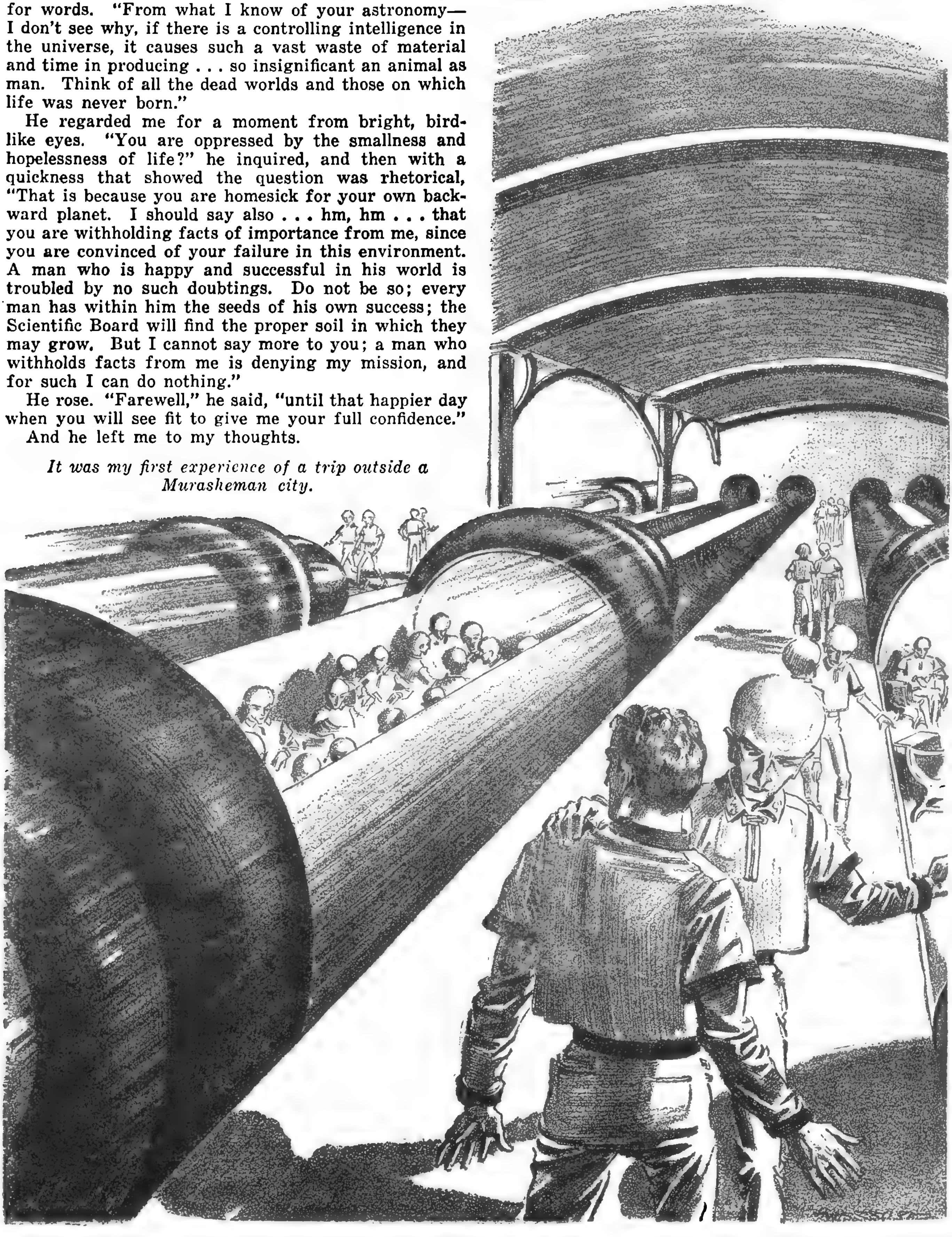
He regarded me for a moment from bright, bird-like eyes. "You are oppressed by the smallness and hopelessness of life?" he inquired, and then with a quickness that showed the question was rhetorical, "That is because you are homesick for your own backward planet. I should say also . . . hm, hm . . . that you are withholding facts of importance from me, since you are convinced of your failure in this environment. A man who is happy and successful in his world is troubled by no such doubtings. Do not be so; every man has within him the seeds of his own success; the Scientific Board will find the proper soil in which they may grow. But I cannot say more to you; a man who withholds facts from me is denying my mission, and for such I can do nothing."

He rose. "Farewell," he said, "until that happier day when you will see fit to give me your full confidence."

And he left me to my thoughts.

CHAPTER XXXVII

I WENT to the ball game a day or so later with Ang Redike, who was much interested in that form of sport. A Murasheman ball game is played by players harnessed under their shoulders with small helium-filled balloons that serve to just lift them free of the



It was my first experience of a trip outside a Murasheman city.

ground. The ball is propelled with an instrument resembling a force-pump. With the aid of the balloons, the players can jump as much as forty feet into the air, and it requires considerable skill to control one's leaps and at the same time to strike the ball in the desired direction. An expert player can follow it through the wildest gyrations, however, somersaulting over and under it in all directions.

I noted, when I sat down to watch the game, that a young man bearing the ideograph of the Hetheleg Arboath had seated himself beside me. He seemed to be trying to attract my attention, but I was interested in the game and did not respond to his advances, until, in an interval of the game, he whispered in my ear, "See me after the game."

I turned toward him; but he glanced quickly at me and then away, evidently not wishing to give my companion a clue to any connection between us. When the crowd began to leave the place after the game, I turned toward him again. "Coming tonight," he whispered quickly. "Turn off your television and lights."

Mystified, but willing to learn what he wanted, I let down my shutters early that night and disconnected the television-phone (a privilege, by the way, allowed only to artists—all other persons being required to leave their sets on at all times to allow the Scientific Board to inspect their doings). After a wait of about half an hour there was a discreet tap at the door. I opened it to the young man, who slipped in quickly, looked around, and announced his name in a whisper. "Poran Tiali," he said, "I wish to speak to you. Dule Jujuk told me you might wish to see me."

"Dule Jujuk?" I asked, mystified.

He looked about apprehensively; I could just catch the flicker of his movement in the velvet black of the darkened apartment. "The philosopher," he whispered.

"Oh," I said. "Well?"

He did not reply for a moment, and I guessed he was gathering his nerve for the next remark whatever it was.

"Dule Jujuk informs me that you are in despair with life," he said.

"Not exactly in despair," I disagreed, "but I don't see why the divine Beyarya should go to so much trouble to produce such insects as we are. . . . But what the devil! That was some time ago and a part of a conversation. Why should he send you to me because of it? Tell me."

"I belong to a body which is unjustly accused of subversive ideas," said he, "whereas we only see things in their true light. . . . We are called the Grehm. . . ."

I started. "The suicide associations!"

"So we are called. But you believe as we do in all essentials, and it is my mission to lay our program before you. . . . Do you know they dare not put the truth in the museum machines? They dare not tell the truth anywhere, these precious scientists of ours, who set so much store by truth. They dare not because we would all cease from this insect-like labor and live the only life of a true man, free and open, like the people of the hunting ground."

"Yes," I said. "Go on."

"I will go on. I will tell you the truth; the truth you will never learn with these scientists with their serums and tensals. But they would send me to the farms for it if they knew."

"Really?" I asked.

He paid no attention, but warmed to his subject and went on. "Do you know what the truth is that does not appear in their museum machines? Do you know what our life on this planet and yours on yours really is? It means that our planets are approaching the end of their history and that all life on them is a disease indicative of the old age of the system, like wrinkles in the faces of men or the diseases of old age. It is a mere surface manifestation. Do you know that the stars have a life of their own? Do you know that they are sentient bodies? Our philosophers would tell you this if they dared; they all know it. The scientists will not let them. They are satisfied with the botched world they have made."

He paused for breath. "Well—" I began, but he interrupted me.

"Let me tell you the truth. Life, as the divine Beyarya sees it, is concerned with His stars. We are insects, parasites, forms of disease. We are not life; we are the negation of life. The divine Beyarya would willingly see us exterminated. Constantly he strives to wipe out this little life from the planets surrounding His suns so that they may live their great life undisturbed.

"We have no purpose here. That much is obvious, is it not?" A pointed finger struck me suddenly on the chest in the dark, a finger fairly trembling with the passion of its owner's utterance.

"Why, I don't know," I temporized, willing to admit the force of his arguments, but not quite seeing where he was leading. (It all fitted in—the unwillingness of the Scientific Board to permit movies of interplanetary travel until Ashembe's great success, the tyranny over every act of life.)

"Grant me that we have no purpose here. What follows then? This follows, that our only purpose should be to amuse ourselves. And how can man amuse himself under so bitter a tyranny over thought and action? Do you know what the Scientific Board does with members of the Associations of the Grehm it catches? It gives them a tensal treatment that reduces them to idiots and sends them to the farms; the farms, mind you!"

His voice had risen almost to a scream.

"Well, what of it?"

"Believing as you do, you must join us. We have plans in train for the overthrowing of this tyranny and the substitution of a reign of reason in which there shall be no more overstuffed civilization—just the free life of natural man in the hunting grounds."

"And what if I refuse and report you to the Scientific Board?"

"You condemn me to the farms. I do not think you would willingly do that. But you would also condemn yourself to the tensal and the farms as well as the serum. For Dule Jujuk would include in his report the undoubted fact that you have withheld information from him. He thinks that the information is that you are not an artist at all. A philosopher's report would carry more weight than anything you could possibly say. You must be one of us. Anyone who withholds information is of necessity."

I saw the point. A species of blackmail. And yet—

"What do you want me to do?" I asked.

"Come with me to the next meeting of the Association of the Grehm and I will tell you. At 77 Farm this side of Idon. I will have one of our Thutiya members call for you. You had best go to bed at once now to cover my visit."

A moment more and he was gone.

Two days later, just at evening, my door was opened on a member of the Thutiya I did not know. "To take you to the gathering my friend spoke of the other night," he said briefly as he came in, and closing my shutters I went with him.*

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*Throughout the whole of this and the remaining chapter, the handwriting of the mss. is execrable, in places so nearly unreadable that it was only after some guessing we were able to piece it together at all. The above paragraph is a case in point; in its final state, it is mostly ours. This portion of the mss. was evidently written in a great hurry and under pressure of strong emotion.

IT was my first experience of a trip outside a Murasheman city. We descended to a level below the lower street level where a station with platforms would have reminded any visitor from earth of a subway station, save for the better lighting. At the side of the platforms a number of cars stood. They were about thirty feet long and their cross-section would have been round. At the front end they tapered like a fish's head, at the rear the superstructure was expanded to a rocket-like tail and the whole end was surrounded by a heavy ring of atotta.

Within, the cars held seats arranged in no particular order, and each car bore a number on its side. The one we were to travel in was numbered 77 in large characters. We stepped in through the side (the whole side was opened out) and sat down. A moment later a bell tinkled in warning, the curved sides slid up automatically in grooves from somewhere below the car body and closed above our heads. A few moments later we moved gently past the platform with a hum of motors into a darkened tube. There we paused. And then a moment later we started (I could tell the difference only by the tiniest shifting of my position) and in hardly a moment it seemed stopped again.

"This is the place," said my companion. I looked up. "How far have we come?" "About eighty miles," he said.*

All Murasheman travel is done by this means, the propulsive force being compressed air, like the pneumatic tubes familiar on earth for carrying messages and change in department stores. Several of the round cars travel in a single tube. . . .†

We emerged from the station into a perfect wilderness of tall, cabbage-like leaves that reached far above our heads. Still further up I could see the room of the building that contained the farm, and behind the rows of plants ran a line of electrical connections. Interested, I asked their purpose, and was told they were for the electrification of the growing vegetables.

Among them also I could occasionally see a figure clad in the gray of the Biyamo, moving slowly and apparently aimlessly about.

"You see what the farms are," said my companion in a low tone as he led the way to a building which rose suddenly from among the greenery, "these people do nothing for all their lives but tend plants. They have no life, no amusements."

"Aren't they unhappy?"

"Why should they be? They are Biyamo, made so by the tensal for punishments in many cases." I shuddered a little at this.

We met in a small room in the interior of the farm building, one side of which was taken up by the reducing apparatus with which the Murashemans produce the alcohols from the raw material—the basis of all their chemistry. Perhaps a dozen of us were gathered there, mostly Hetheleg, although I saw one Bodrog ideograph of a style unfamiliar to me and one of the Davex besides us two Thutiya.

A middle-aged man rapped for order and began, "We have gathered here, my friends, in the name—" when all at once there sounded from the door the shrill notes of a whistle. In a moment we were in wild tumult. There was a rush for the door, but before anyone could reach it, it burst open with a shattering crash and the officers came in. . . .‡

. . . this means one of two things, either I shall be given treatment under the tensal and leave this room a changed personality, the same only in name, to become a humble and unintelligent laborer with my hands or I shall be degraded to the ranks of the Thutiya Bunyo to become an outcast, despised even by the lowliest workmen of Murashema. In either case my doom is sealed.

For the time to write this narrative and the means to send it back to the earth I am indebted to Koumar Ashembe, who has steadily stood my friend, even in my great guilt and trouble. I can only hope that it will fall on some spot where it will be found and preserved and ultimately revealed to the world. I am certain that it will find the world, so much confidence I have in Murasheman science. But this is my only hope that some memory of Alvin Schierstedt will be preserved among my friends. Farewell.*

All food, I found, is produced by chemical means. Alcohol is the great raw material and solvent, and alcohol is produced in enormous quantities from plants which are grown in immense greenhouses in electrically activated soil beyond the limits of the cities. The whole country, aside from those parts so wild that they have been set aside as hunting grounds, is covered with them. They are in the hands of train operators, who gather the plants, cook them down for alcohol and other products and ship them to the cities via the immense pneumatic tubes in which heavy transportation is done.

Transportation between cities, as distinguished from that between cities and farms, is carried on long, straight roads, roofed-in cars propelled by the rocket type of motor carrying the passengers at unbelievable speeds. The roads are much fewer than on earth; there are no small towns to lead to bypaths and deviation. For pleasure travel there are airplanes also, though the airplane has long since been abandoned as a means of serious transport as being too costly. The Murasheman airplane is a small affair, furnished with a light motor and a helicopter screw just powerful enough to keep it in the air at the desired level. For propulsion it depends upon foot power and a system of gears that makes it resemble an aerial bicycle. It is possible to rise by means of the screw and float lazily down currents of air. Strong winds are almost unknown on this planet of perpetual calm. Personally, I did not find these diminutive airplanes attractive. Outside the roofed-in districts Murasheman air is too cold and rarefied for my taste.

There is little water travel and for a good reason—water is scarce. The whole planet is much drier than the earth; there are wide expanses of complete desert and other areas that would speedily revert to that condition were not artificial means used to keep them fertile. The oceans are correspondingly small. The largest is hardly as big as Lake Ontario, and the river that courses under the walls of Atargol (which we crossed on the night of our arrival) is the largest of the whole planet.

Clothes are incredibly cheap. Like the food, they are prepared by chemical means from the huge plants grown in the greenhouses. They are used once or twice and then thrown away, the materials being reduced and recombined for use again. Men and women wear the same type of clothes, the difference being indicated by the emblems woven in the shoulder of every garment. These emblems are on all clothes, and the upper class of Murashemans add to them personal emblems on a complex system of heraldry. One finds the emblems set into doors, attached to every type of personal property.

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*The figure is either eighty or eight hundred. Illegible. We have adopted the more conservative figure.

†The rest of this paragraph is totally illegible.

‡Again a period of illegibility. What follows appears to be mostly vituperation. A phrase or two emerges . . . "brutality of these minions . . ." "held incommunicado . . ." The word "trial" occurs several times, and it is a pity that the mss. is so bad at this point, for Schierstedt's account of a Murasheman criminal process could not fail to be both interesting and suggestive. We give the continuation at the earliest point where connected reading is possible.

*There follows a couple of sheets which have no bearing on the general narrative, but appear to be an account of some of the more interesting aspects of Murasheman life. They are written with more care than the last chapter and were apparently intended to form a part of a longer and larger account.

Like the emblems, every detail of Murasheman daily life is regulated by law or custom. Babies are taken from their mothers in the cradle; only a very few parents raise their own children, and these have to face not ridicule alone but a heavy tax in labor tickets for the privilege. The children are carefully reared in an environment where they receive daily medical and psychological examinations to determine their tastes and abilities, and while still very young they are assigned to the class of the state to which they will ultimately belong and taught everything necessary for them in the life of their class. Upon emerging from the hunting ground, children receive another examination and are graded for their future life accordingly. Theoretically, as I have explained, the scientific boards are despotic in their determination of what status shall be accorded to the individual; in practice, a good deal of attention is given to individual taste.

The same holds true with regard to Murasheman marriage, although it is only fair to state that love is regarded as a primitive emotion and except among the irresponsible Thutiya, can hardly be said to exist. When the Scientific Board decides that two people need companionship or that a union between two certain individuals would produce a child having valuable inherited characteristics, the two are commanded to live together. If the union is a failure (though it seldom is) they are separated by the Board in the same way. There is little ceremony in either case, but immorality as we understand it is almost unknown.

Medical science is simple and efficient, being based largely on vaccine therapy. Every infant is given a series of vaccines designed to protect it from all known forms of disease. There is an occasional case of disease, but the Murashemas look upon these as due to some inherent defect in the individual and usually resort to organic surgery or the mercury ray for cures.

In amusements, the Murasheman taste is catholic. Contests between individuals are perhaps the most popular form of athletics, both sexes participating. These contests are held in amphitheatres in some of the towers. The contestants ordinarily wear a protective armor and are armed with sword and bow. Underlying the outer shell of the armor are a series of vessels containing a white liquid. A sufficiently powerful and well-directed blow serves to rupture this outer coating; the liquid flows out on the dark-colored armor and the contestant is vanquished.

Among the Biyamo (the lower class of workers) more serious diversions are popular, the contestants wearing no armor and often being killed. Indeed one of the most striking characteristics of Murasheman life is a certain carelessness about the value of it. Some hundred perish annually in the hunting grounds and many of the Biyamo and Hetheleg die at dangerous tasks without the slightest regret or thought on the part of the rest of the community. The Scientific Boards, of course, examine each accident with a view to preventing its recurrence, but rather from an unwillingness to lose a good machine than from any humanitarian motives.

I must also mention that swimming and water sports are unknown. My companions were horrified when, on arriving at Kinyon Sea one warm afternoon, I removed my clothes and plunged into the water. They thought I was committing suicide, but whooped with astonishment and delight when they saw me strike into a crawl stroke.

As to the fauna of Murashema, it consists almost entirely of ....

THE END

The Difference

The spider spins a slender thread
Across a yawning space;
She clambers to a dizzy height
To fix the lines in place.
She stays her cables, joins her strands,
Her ropes defy the breeze;
Lightness and strength combined—and that's
A cobweb, if you please.

The engineer his transit sets;
He draws to scale his plans;
He runs his cables, ties his beams
And places piers and spans.
With trestles set and girders swung,
Abutments all complete,
The bridge hangs safe across the gorge—
An engineering feat!

A body poising in the air,
It circles, dips and glides;
It breasts the storm; it cleaves the mist;
Upon the air it rides.
It rises swiftly from the earth
Light as a spoken word;
It balances upon the air—
That's just a flying bird.

A thing of ropes and wires and stays,
Of wings that look like walls,
It whirls and circles, sweeps and glides
And dips—sometimes it falls!
But if the engine does not fail,
And if the weather's fair,
It sails aloft above the earth:
The conquest of the air!

—*E. A. Everett.*

Once in a Blue Moon

By Harl Vincent

Author of "Barton's Island," "Power," etc.

THE moon, although comparatively close to the earth, is as deeply shrouded in mystery, as far as actual knowledge is concerned, as are any of the planets. Why is only one side always turned toward the earth? What, if anything, is going on up there? When someone finally succeeds in shooting himself to the moon and back again, we will know the correct answers to these questions. Until then we can only theorize—basing our theories on telescopic findings, of course. Harl Vincent, besides being a scientist, is also endowed with a true scientific imagination, which he turns loose on this subject. The result? A unique story about our satellite.

Illustrated by MOREY

LIKE the alchemists of ancient days who sought to transmute baser metals into gold and silver our scientists of the twenty-first century have labored for three decades in the hope of producing lunium in their crucibles. They have analyzed the metal with infinite care and precision and have mixed its constituent elements under every conceivable combination of pressure and temperature. Yet their efforts have met with failure. The natural alloy found on Earth's moon seems impossible of duplication in their laboratories.

The remarkable properties of the moon metal were brought to light in 2017, after Philip Metz returned from that first rocket trip which was sponsored by the Smithsonian Institute. He brought with him a sample of the strange blue metal and, quite by accident, experimenters discovered that certain high-frequency electrical impulses imparted to it the powerful gravity force which has since been used in lifting and propelling our vessels of the air and of space. Then followed the rapid broadening of man's knowledge and attainments that came with the contacts he was enabled to establish with other inhabited planets.

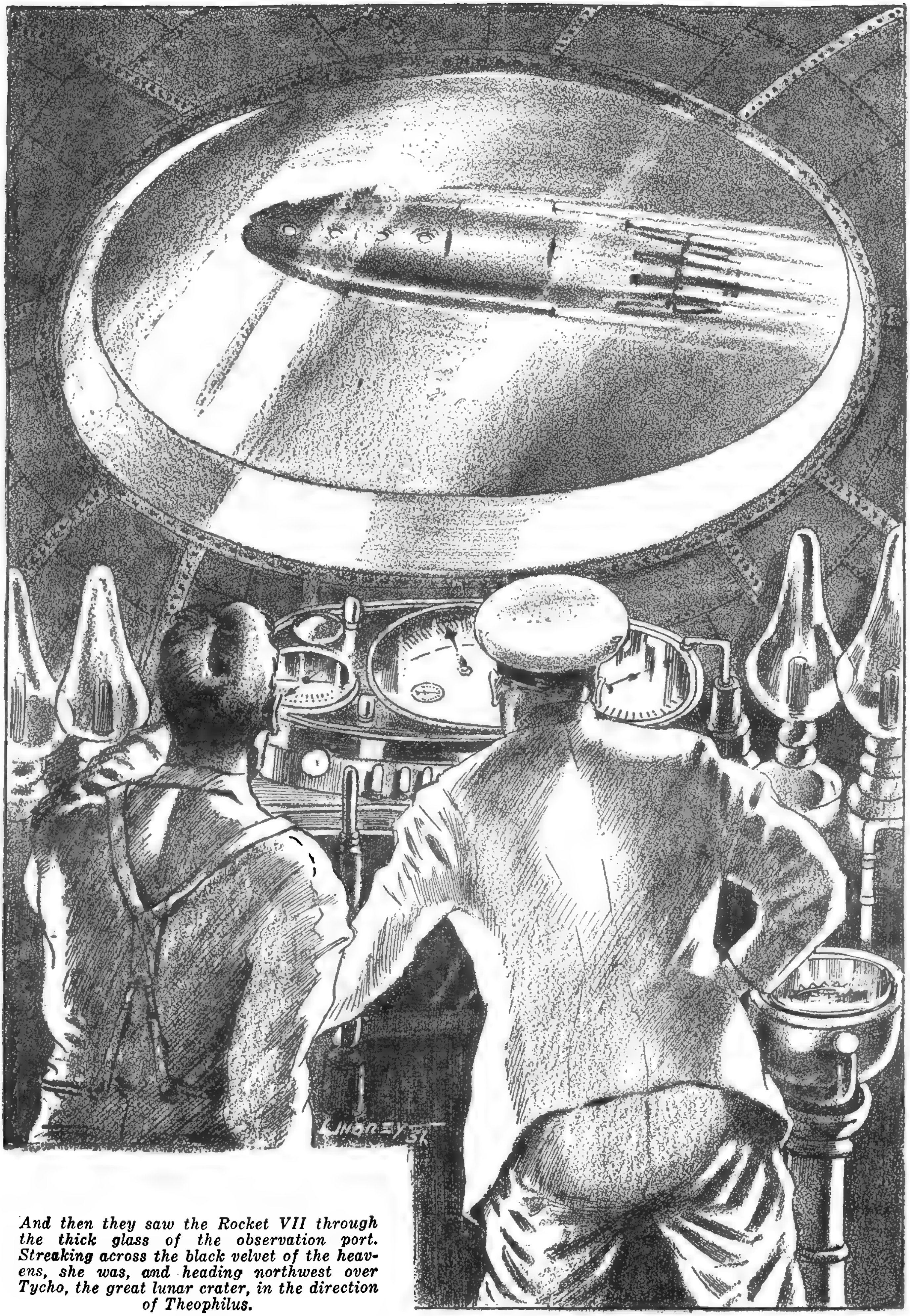
There is no need that the men of science produce synthetic lunium; the mining of the natural substance has now become a well-organized industry, and vast quantities of the material are daily removed from the so-called rays of the moon's surface and transported to Earth, Mars and Venus in huge freighters of the ether whose construction was made possible by the use of the blue metal.

But the early adventurers and prospectors faced great hardship and untold danger in making the trip from Earth in the crude rocket ships of the day. Many of those who reached the moon did not return to tell of their experiences; many others missed their destination entirely and were lost in the trackless void of outer space.

And we, who so calmly enjoy the benefits brought to mankind by the universal use of the moon metal, are prone to forget the difficulties which beset those early pioneers. There were strange tales that came to our ears, conflicting stories and most of them incredible. In the increasing rush of modern civilization we gave them little heed. And returning voyagers soon ceased speaking of their adventures.

There came the time when the moon presented to us an entirely new face, the satellite having turned completely over on its axis during a single night. It was a nine days' wonder to the layman, but scientists were glib in explaining the phenomenon by natural causes, although there were many dissenting opinions among them. This, too, was forgotten in a short time, and the world went merrily on. It was far more interesting to speculate on the financial and educational gains to be realized from the contemplated alliances with the peoples of other worlds.

The true story of what happened in the ancient hidden world of Luna has never before been told and is only made public at this time through the finding of the diary written by one of the terrestrial participants who recently died. In its essentials the story has been confirmed by other survivors of the expedition. Whether the diarist was strictly accurate in his account is of little moment; the tale makes good reading, and the fact remains that Luna *did,* on June 6, 2019, com-



And then they saw the Rocket VII through the thick glass of the observation port. Streaking across the black velvet of the heavens, she was, and heading northwest over Tycho, the great lunar crater, in the direction of Theophilus.

pletely reverse her position in the heavens with respect to Earth. And, be it known, astronomers are yet disagreeing as to the precise nature of the disturbance which brought about the change. It is the way of scientists.

This, the diary's story, likely will leave them still at odds.

MOON ROCKET IV lay just south of the great crater of Tycho, within less than a half mile of the broad ray of lunium, which extended to the southeast in the direction of the Doerfel Mountains. Her main cargo compartments were nearly filled with huge ingots of the blue metal that was so greatly desired by a world gone suddenly mad over the idea of interplanetary travel. Those who had financed the vessel's construction were sure to reap handsome profit on this, her second voyage.

Captain Wallace James was at the eye-piece of the telescope in the observation dome at the vessel's nose. The glass was trained on the great white-mottled green globe that hung low in the lunar sky. Earth! A quarter of a million miles away; infinitely remote it seemed and at the moment so utterly desirable a berth for the Rocket IV. A wave of nostalgia gripped the captain and he vowed under his breath that this was his last voyage outside the atmosphere of Terra.

"Reporting the approach of Rocket VII, sir." Clark Peters, his optophone operator and auxiliary pilot, broke in on his meditations.

"Close by, Pete?" The captain turned guiltily from the eye-piece of the refractor, making desperate efforts to compose his features.

"A thousand miles out and coming in fast. Too fast, I'd say."

Young Peters, wiry, lanky Kansan, with huge hands and feet, stood there awkwardly with thumbs hooked in his suspenders. Deep concern was in his long, solemn countenance.

"How fast?" The captain drew in a quick breath; this was to be another case of a hopeless rescue attempt, he feared.

Pete, though hardly past thirty, was the veteran of a half dozen South American revolutions and of many times that number of hairbreadth escapes from sudden and horrible death. Easy-going and fearless, he was ordinarily unmoved in the face of danger of any sort. But he was sick of digging mangled, exploded remains of his compatriots from the twisted wreckage of rockets. They all were.

"Well, I don't know now," the operator drawled, his tense look relaxing somewhat. "They should be in sight by this time. And maybe it isn't as bad as I thought."

Captain James swung the telescope around and searched the heavens in the direction indicated by Peters. "Who's master of the vessel?" he mumbled.

"Their optophone man didn't say. And a funny thing, too, no image came through on the disc. Transmitting operator said his image projector was out of whack—generator burned out or something."

"You think they were hiding something?" The captain did not look up from the eye-piece, but his voice was brittle.

Moon Rocket VII had been constructed and launched by a group of shady financiers, he well knew.

"Don't know as I'd go so far as to say that," Peters replied with calm deliberation. "But——"

"Here she comes!" the captain exclaimed excitedly. "Rocket-tubes flaming, but hardly slowing her down. Plug in on the opto, Pete."

Whatever the doubt regarding the Rocket VII, she was a ship in distress and their duty was clear.

The optophone purred gently as Pete closed the switch, then emitted the hollow, empty sound of an open ether wave. "Ahoy, Rocket VII!" he called into the disc. "Rocket IV asking if you are in need of help."

"What in the devil could you do if we were?" the optophone snarled in return.

"Well, I don't know now," Pete commenced slowly.

"To hell with them!" the captain roared, interrupting, "if that's the way they feel." He turned jerkily from the telescope and his face was purple when he glared into the disc of the opto.

No image was there to return his savage stare.

Clark Peters smiled his slow, disarming smile. When Pete grinned *that* way, Captain James knew he was riled and riled plenty.

And then they saw the Rocket VII through the thick glass of the observation port. Streaking across the black velvet of the heavens she was, and heading northwest over Tycho, the great lunar crater, in the direction of Theophilus. Her forward rocket tubes were belching yellow flame, yet she hurtled on as if the reaction against the expanding gases was of no avail.

"With your permission, sir, I'd like to follow them," Pete offered. He switched off the optophone as he spoke. And his grin had crystallized into an ominous thing that had no mirth in it.

Captain James looked out over the earth-lit lunar landscape in the direction the unfriendly vessel had taken. He hated to risk the lives of any of his crew, Pete's especially. But the strange actions of the Rocket VII demanded investigation.

"Very well, Pete," he agreed finally. "But the miners are all out working the ray. You'll have to take the kid along—Downey, I mean. And old Saunders, though I'm afraid he'll not be much good to you."

"Okay, sir; they'll do." Pete nodded grimly and was gone.

MOON ROCKET IV was the first of her kind to be equipped with a lunium-hulled tender. It was the only form of light craft which could navigate over the moon's surface. Airplanes and helicopter planes were useless on account of the absence of an atmosphere. But the slender, torpedo-bodied blue ship, provided by the owners of Rocket IV, could rise swiftly above the tallest lunar spire when her lunium plates were negatively energized and made speedy progress forward under the tremendous blasts from her single swiveled rocket-tube astern.

Clark Peters had conceived a deep affection for the little vessel and had christened her the "Hornet" when first he heard the spiteful, high-pitched hum of her frequency converters. The name had stuck.

Pete faced Morton Saunders in the airlock that berthed the "Hornet." Saunders was a character and not at all as useless as the captain had indicated. Probably fifty or fifty-five years of age, he was totally bald, but his square face was set off with remarkable bristling brows and mustache of unbelievably deep red hue. A conceited ass in the eyes of the miners, but he'd been places and seen things in his day. And he was a crackerjack electrician.

"Mort," Pete was saying, "Cap is sending us out after a ship that only now came in from home. Rocket VII. She went overhead like a streak and was lost in the direction of Theophilus."

"Huh," Saunders exclaimed with a grimace. "Another crackup?"

"Don't know as I'd go so far as to say that," Pete answered slowly. "Maybe yes, maybe no. She's a queer bird, Mort; turned us down when we hailed her. And the optophone man didn't show his face."

"Huh! Nice, friendly folks, I'd say. We'll have to put 'em in their place. You and I, Pete——"

"You sent for me, Mr. Peters?" a respectful voice broke in from the inner door of the lock.

"Slim" Downey, a light-haired lad in his early twenties, stood there uncertainly, and Pete eyed him contemptuously. One didn't address any man as "mister" on board the Rocket IV—excepting the captain. Downey was a stowaway and there was considerable mystery as to the history of his immediate past. General opinion in the miners' mess had it that he was a fugitive from justice. "Yellow Kid," they called him. Certain it was that he acted jumpy, scared of everything and everybody. But at times there would come into his mild blue eyes a gleam of intense feeling that belied his meek demeanor.

"I did," Pete snapped. "Bolt home the inner door, kid."

"We—we're going out in the 'Hornet,' Mr. Peters?" the lad faltered, paling swiftly.

"Right. What's wrong with you—no guts? And listen, I'm not *Mister* Peters either—get that?" Pete glowered, baiting the lad.

Downey flushed as swiftly as he had paled and a fierce glitter shot out from beneath his quickly narrowed brows. "I get you—Pete," he said in edgy tones. And then he turned jerkily to the bolts of the door clamps.

Pete hooked his thumbs in his suspenders and grinned at Saunders. "May make a man of him, Mort—this expedition," he whispered.

"Huh!" Saunders sniffed disdainfully and tugged at his fiery mustache. "In my humble opinion, the boy is a——"

But Downey had finished his task and now whirled to face the two older men. "I'm with you," he said unexpectedly. "Let's go."

Pete stared in amazement. The flush still mantled the youngster's smooth cheeks and his chin was raised. But the cold fire was dying out of the pale blue eyes. They were mild once more and dropped before the fixity of Pete's regard.

"All right, kid, we go," Pete growled. "And make it snappy." His gaze, puzzled now, did not leave the slim figure as the Yellow Kid scrambled through the entrance port of the "Hornet."

With the "Hornet's" atomic motors running at full speed, the turning gear that projected from her nose made quick work of unscrewing the circular outer port of the airlock. There was the swift hiss of escaping air as the hinged door swung outward, the shrill note of the frequency-converters within, and the little vessel raised lightly from her cradle. Pete pressed the rocket-tube control and, with the staccato barking of the blasts astern, they shot out into the frigidity and semi-darkness of the long lunar night.

"Slim" Downey crouched by one of the floor ports of the control room as Pete drove the "Hornet" out over the huge crate of Tycho at top speed. He was utterly appalled by the altitude and by the swift rush into the desolate wastes of the cold satellite, Pete thought. Mort Saunders was in the motor compartment, starting their oxygen apparatus.

They lunged out over the towering serrated rim at the far edge of the crater and drove along above the mile-wide streak of cobalt blue—that was a lode of pure lunium—the great moon ray that extended the entire distance from Tycho to Theophilus. What enormous wealth would be his who might convoy but a small fraction of that vast deposit to Earth!

Pete searched the horizon with the telescope, but could make out nothing to indicate where the Rocket VII had landed, if indeed it *had* landed. In the mellow earth-light the moon's rugged contours stood out against the diamond-studded ebony of the firmament in sharp relief, barren and forbidding, yet softened somehow by the thick dust of ages that lay like a vast blanket over all.

Pockmarked and scarred, lonely and mysterious as a graveyard, cooled to a temperature one hundred degrees below zero during the long night of more than fourteen earth-days, and heated to near the boiling point during the equally long lunar day, there were still optimists of Terra who made bold to predict that the god-forsaken satellite would one day become a vast hive of industry and be peopled by hundreds of thousands of Earth's workers. Clark Peters was not one who believed them. A prospecting trip was one thing, with every hope of a quick return to civilization; permanent residence was quite another matter.

A grotesque dark blot spread along the rim of a small crater ahead of them, then was lost astern as they sped past directly overhead, all that was left of Moon Rocket III! Pete saw that young Downey had risen from his crouching position at the floor port and was eyeing him intently. The lad was chalky white and his lips trembled.

"Tha-that was a wreck, wasn't it?" he babbled.

"Well, I don't know now," Pete drawled. "Seems to me it's better called a tomb. Used to be Rocket III, that mess, and there are some ninety-odd corpses spread around down there."

"Good Lord!" Downey fell gloomily silent for a moment, then turned on the pilot in sudden panic. "Where are we headed?" he demanded.

Pete grinned. "Who knows?" he replied with aggravating calm. "Perhaps for another such tomb. At any rate, we're hunting another ship—Rocket VII. She came over from home ten minutes before we set out."

Downey yelled in what seemed like utter demoralization. "No, no!" he screeched. "Not that, man! You don't know—" And then he wound his slender fingers around Pete's wrist, fingers that gripped like steel.

Astonished, the pilot loosed the controls and tore his arm free.

"What the devil!" he roared. "You yellow cur——"

And then Clark Peters found he had a young wildcat on his hands.

"You can't!" Downey was jabbering. "Not Rocket VII. You can't—I won't let you."

A sharp-knuckled fist caught Pete behind the ear with painful force. The frantic youth squirmed in under Pete's arms before the amazed pilot was able to stop him. The lad was tugging at the controls, snarling like an animal at bay, staring wild-eyed. There was but one thing to do and Pete did it.

Lashing out with a huge fist, he doubled the boy up with a swift blow to the solar plexus. Not his usual hard-driven punch, but enough. The Yellow Kid slumped to the floor plates, moaning and gasping.

Careening violently, the "Hornet" headed madly toward the surface. Pete dove for the controls and endeavored to right her. But in that instant they swooped down into the deep chasm of a rill. Pete caught a momentary glimpse of this vast gulf that was swallowing them up, a yawning abyss into whose depths the "Hornet" plunged. Murky blackness enveloped them.

And the motors stopped with a despairing, trailing whine.

MORT SAUNDERS blundered into the control room. "Huh!" he exploded. "Machinery's dead. I swear I did everything, Pete; no one could——"

He broke off grunting as he collided with the wriggling, whimpering thing that was Slim Downey. Pete heard him swear softly in the hollow silence and Stygian gloom.

The emergency lights flashed on then, illuminating the control room with their dim soft glow. Their batteries, at least, had not failed them. And Pete switched on the forward searchlight, sending forth its dazzling beam into the blackness of the pit.

Slim Downey yelled then, coughing painfully. "No, Pete, not the lights! They'll see us. Turn them off."

"You shut up!" the pilot snapped. Pete had thought there was a moving mass down there in the depths.

"Oh, God!—you've *got* to listen." Downey was dragging himself to his knees; his teeth chattered uncontrollably.

Pete growled savagely, continuing with his search of the depths. The "Hornet" was dropping with swift acceleration into a seemingly bottomless pit that was fully a half mile across. Utterly helpless she was, her atomic motors paralyzed by some strange force that surrounded them.

"In my opinion," Saunders was saying, "the boy knows something. I'd do as he says, Pete."

"I'll say he knows something!" Pete had caught the gleam of a huge steel cylinder down there; Rocket VII, without a doubt. And the big rocket ship was dropping even faster than they. He pulled on the switch and once more darkness closed in about them.

He reached for Slim Downey, saw a violet corona discharge crackling as his fingers closed in on the trembling arm. The very air of the control room was electrified.

The youngster moaned as Pete's grip dug into his yielding flesh. "Let up, Pete," he whined. "I *do* know something."

"Spit it out then!" Pete relaxed his grip somewhat.

"It's a—a big job of Aleck Carter's. His men were here before on the first trip of Rocket VI. There's a world inside here, Pete, and it's peopled with ghastly little devils that Carter wants to hook up with. Keep the lights off, for God's sake. We may get away."

"A hidden world!" Pete gasped. "How do you know?"

"Never mind. I know, all right—" Slim blubbered as Pete's fingers dug deeper. "Carter put me on Rocket IV," he moaned then. "I won't do his dirty work, though—damned if I will. You're the boss, Pete. I'll do anything you say, see if I don't."

"I'll see that you *do*," Pete grated, shoving the lad away in disgust. So Aleck Carter was mixed up in this thing! His minions had found their way even here and were planning some new deviltry that would involve humanity still deeper in his toils. Carter, with his billions in wealth, would buy an entire civilization, good or bad, to serve his own ends.

"Huh!" Saunders blurted out of the darkness. "A likely story. You and I, Pete, will get at the truth of it when we——"

"When we crash? You're optimistic, Mort."

"There won't be any crash," Slim broke in eagerly. "This force of the pit will——"

And then, as if to belie his words, the "Hornet" struck heavily on the starboard side amidships. She rolled over and pitched the three men in a scrambling heap, then slid nose down along a gentle declivity, bouncing and careening over the rough surface. There was a ripping screech below as her landing gear was torn loose and she pitched over on her nose, coming to rest at an angle of about forty-five degrees.

"Well, I don't know now," Pete drawled. "This seems *almost* like a crash to me."

His cheek was pressed to the icy glass of one of the floor ports and the wriggling weight of Mort Saunders lay across his shoulders. But there was no hiss of escaping air; the lunium hull of the staunch vessel was unpunctured.

ROSY light streamed in through the ports and they saw they were in an enormous cavern where Rocket VII stood solidly on her base, nose skyward and unharmed. The "Hornet" lay on a slope several hundred yards away, partly submerged in the powdery surface and hidden from the lower portion of the great rocket ship.

Mort Saunders pointed to the instrument panel. "We're ten miles below the surface, Pete," he exclaimed. "And, in my humble opinion, the pit has an atmosphere of some sort. Look at the manometer."

The outside pressure was indicated as about seventeen inches of mercury, not much lower than that on the mountain tops of Terra. If this was air in the pit, they would be able to venture outside without their bulky Metz suits and oxygen helmets. The temperature was much higher than on the surface, showing as 48 degrees Fahrenheit.

Pete whistled. "*This* will be something to write home about," he remarked. "What next, I wonder."

"You—you're not leaving the 'Hornet'?" Slim Downey asked.

"Nothing else but," cheerfully, "and you're coming with us, my boy. Here, Mort, we'll have to use the lead boots."

He had started toward the airlock where the heavy equipment needed in the moon's low gravity was stored, when there came the gentle rising purr of the atomic motors. The paralyzing effect of the pit had been released or "turned off." Quickly Pete threw the starting lever forward and the purring died off into silence.

"You could leave at once——" Slim Downey began.

"Not on your life! We'll see this thing through, now we're here. Step lively, boy."

"You're the boss," the lad replied meekly. But his eyes did not meet those of the big man who stood menacingly over him.

With the lead-soled boots strapped to their feet, they dragged themselves out from the artificial earth-gravity of the "Hornet's" interior, dropping one at a time to the thick dust of the lunar cavern floor. A sound of clanking machinery and the shouting of many voices came from beyond the knoll where the rocket ship reared its great bulk.

A curious sense of light-headedness came to Clark Peters with the breathing in of the thin sharp air. His vision was distorted in the wavering roseate light. Young Downey had slipped to his knees and was wriggling his way to the top of the knoll.

"Stay where you are," Pete called out cautiously. "And no signals to your friends, either." Suddenly it had come to him that there was more to the Yellow Kid than he had thought.

The young fellow halted, crouching, and grinned over his shoulder. "You're the boss, Pete," he replied. But there was a new courage in his slightly superior smile, the courage of desperation and of a dark knowledge that was his.

Pete fingered the cold tube of the bullet projector he carried. He had taken care that only Mort and himself were thus armed, and with more than a hundred rounds of the ultranite ammunition in the possession of each, he was confident of their ability to cope with almost any situation. But he was darkly suspicious of young Downey.

Scrambling to the side of the strangely metamorphosed youngster, he raised his head to peer out over the vast floor of the cavern. Mort Saunders, with much puffing and grunting, drew himself alongside.

A scene of intense activity centered about the five massive pillars of Rocket VII's base. Queer, stunted creatures, thousands of them it appeared, were clustering there before a massive mechanism that was being lowered from the crane arm of the rocket ship. Impossible pigmy beings that stood erect on two legs, bodies covered with iridescent scales, long arms dangling. Globular, hairless heads of chalky white, with bulging eyes and cavernous, scarlet mouths. And twenty or thirty Terrestrials in their midst, fraternizing with the ugly monstrosities!

"A rummy lot, in my opinion. Huh!" There was utter loathing in Mort Saunders' much-used exclamation. That "huh" of his was capable of expressing his every mood and reaction.

Pete's blood froze in his veins at sound of a demoniacal shriek that rose unexpectedly from the lips of Slim Downey. He clapped an enormous paw over the crazy youngster's mouth and shook him violently.

"Idiot!" he hissed. "You'll have them on us like a pack of wolves."

Things happened all at once when Slim's yell rang out in the huge open space at the pit bottom. There was a bedlam of shouting over by the rocket ship, unintelligible, gulping screeches of the moon-men and hoarse curses in vivid English. A muffled explosion sounded from behind the great vessel and a swirling cloud of faintly luminous green vapor rose swiftly, forming itself into an immense shimmering bubble that closed down over the scene. Rocket VII and the polyglot pack at its base were completely enclosed.

And Slim Downey developed muscles of steel and the agility of a cat. Like a coil spring suddenly released, he popped out from beneath Pete's swiftly flung bulk, leaving the amazed pilot to sprawl in the thick dust. And then he was sprinting toward the shining green bubble.

"Damned little rat!" Saunders snarled. "That's enough for you." He raised his bullet projector and fired from the hip.

"Mort, don't!" Pete struck upward at the slender weapon, his arm deflecting the tube just as the propelling ray spat forth.

The explosive bullet went wide of its mark and an appalling crash echoed in the pit as its energy was expended harmlessly on the rubbery surface of the green vapor dome. The mighty force of the ultranite charge would have shattered a monolith, yet the gleaming bubble merely shivered under the impact, changing its smooth contour not at all.

Slim Downey tossed back a tantalizing laugh.

And now three globular objects burst out from the hemisphere of green; solid metallic shapes, apparently about four feet in diameter, drifting unsupported through the rare air of the lunar pit, coming swiftly in the direction of the knoll and floating waist high above the cavern floor. Still laughing crazily, young Downey flung himself on the nearest of the spheres and was immediately absorbed into the body of the uncanny thing. Just melted into its embrace and was swallowed up bodily as if the thing were a ball of jelly.

It might have been the disappearing act of a vaudeville magician. The weird globe changed not one whit in size or appearance, but halted its progress and hovered there in midair as if awaiting its fellows, which continued in their deliberate movement toward the remaining two Terrestrials.

Mort Saunders went berserk, firing rapidly from his bullet projector. Ear-shattering reverberations echoed in the cavern as ultranite charges exploded in swift succession against the spheres. But the drifting globes only came on the faster, their surfaces unmarred and undeterred in their ghastly purpose.

"Run for it, Mort!" Pete shouted, wheeling about to suit his own action to the words. "Quit shooting; they're too close."

He groaned as Saunders staggered and fell. One of the spheres was upon the older man in an instant. With a sucking, whistling sound the sturdy body was merged with its mysterious substance. Gone; vanished, Mort had, as Slim had vanished. Like water absorbed by a sponge.

Unreasoning fear had Pete in its grip. It was as if his feet were rooted to the spot. A nightmare! His voice, when he essayed a yell of unalloyed terror, died chokingly in his parched throat. Then the clammy metal of the third sphere enwrapped him.

The rosy light of the cavern was dimmed. Flame-shot blackness was in Pete's vision. Frigid, unyielding metal congealed about him. Icy fingers of steel twisted in his vitals and he knew no more.

CONSCIOUSNESS returned swiftly and painlessly. Clark Peters sat up on the hard floor he found under him and took in his surroundings with unbelieving eyes. He was in a great circular hall of many tall columns and with a high arched ceiling that glowed with the rosy light they had seen in the pit bottom. The air was fresh and warm. Mort Saunders lay close by, still unconscious, but breathing normally and with good color in his cheeks.

A quick search apprised Pete of the fact that they were without their weapons.

"Your companion will recover shortly," a voice sounded in his ears. No, it was *not* a voice; a mental impression more accurately. There had been no sound in the vast chamber.

Looking swiftly around him, Pete saw one of the spheres like those which had captured them. Certainly they were made of gleaming blue-white metal, yet they were possessed of miraculous powers of locomotion and of other qualities that made it certain they were no ordinary mechanisms of human manufacture. These things had *brains*. This one was resting on a tripod made of a multicolored translucent material like stained glass.

"I suppose *that's* what talked to me," Pete muttered foolishly.

"You have guessed the truth, Earth-man," came the quick mental response. "And you may speak freely that which is in your mind. Or speak not at all, if you choose. We may communicate regardless. And the Great Ones of Luna have commanded me to enlighten you."

Pete hooked his thumbs in his suspenders and regarded the metal globe curiously. After this experience, nothing he might see within this mad satellite or on its surface would surprise him.

"There are still more surprising things," the mental reply flashed back. The eerie globe needed only his thoughts, not his speech.

And thought-images flickered across Pete's mind in swift succession, after the fashion of a panoramic motion picture. Rather they flashed as shimmering light-images on the surface of the mysterious sphere. He saw that Mort Saunders had drawn himself erect and was staring goggle-eyed, plucking nervously at the bristles of his red mustache. Mort was seeing the same things, getting the same reactions as was Pete.

Under the sphere's strange telepathic influence, the hall of the many columns faded away in blue mists and was gone. It seemed they were drifting freely in space then, Pete and Mort and the shimmering globe, hovering in the enormity of a cosmos where three other objects, three suns of indigo hue, bathed them in eerie light that altered all things in their perceptions.

They were deep in the moon's interior, their minds were informed, hundreds of miles beneath the surface. Earth's satellite was hollow! And the three suns lighting the blue realm were huge masses of lunium, charged with the sub-electronic forces and mind-energies of ancient Luna, possessed of powers far greater than those of the insignificant Lesser One which had been detailed as the mentor and guard of the Earthmen. The Terrestrials were in the presence of the Great Ones of a blue moon, in a realm unknown to the science of Earth.

Many puzzling things were made clear to Pete and Mort. The old uncertainty of astronomers as to why the moon always presented the same side to the mother planet was explained away. The hollowed-out heart of Luna, a cavity some twelve hundred miles in diameter, is concentric with the outer surface. But the Great Ones, enormous gravity masses in the Earth-moon system, however constantly near the huge lunium deposits in the inner wall that was nearest the mother planet. Luna's center of gravity being thus offset a considerable distance from its mathematical center, Earth's powerful attraction acted more strongly on the heavy side, keeping the same face of the satellite always in view. As a round-bottomed, weight-loaded toy stands erect, so the moon maintained its position with respect to Earth.

Millions of years older than Earth's civilization, the original inhabitants of Luna had taken to the inner region when the atmosphere outside thinned out and had escaped. Evolution through subsequent ages made of them the complex, atomic structures now represented by the spheres which seemed to the Terrestrials only like globes of polished metal. These metal balls, the true Lunarians, were capable of existence without an atmosphere and without food. But there were the pigmy folk, cave-dwellers primarily and much lower in the evolutionary scale, and the Great Ones had decreed that these be cared for until the end of time. The Lesser Ones were their guardians and protectors.

And then had come the minions of Aleck Carter, stumbling accidentally into the great shaft which connected with the inner regions. The omniscient Great Ones envisioned their coming and sent the sub-electronic energies into the pit to break their fall. And there at the bottom of the pit, the pigmy folk had made friends with the first Terrestrials they had ever seen.

But the Great Ones and the Lesser Ones were suspicious of these visitors who had come to trade the bounty of the mother planet for their own vast deposits of lunium.

"Trade!" Pete blurted out the unnecessary words. "What can Aleck Carter offer in trade? How can he hope to acquire a monopoly of the metal which is so plentiful on the moon's surface?"

If a smooth metallic sphere can shrug its shoulders, this Lesser One did that very thing—mentally.

"You shall judge for yourselves," its unspoken message came. "We go to the abode of the pigmies."

AGAIN there was the confusing sense of change. The blue mists came and advanced before them in tiny weaving wisps, then coalescing into shapes that were gigantic yet familiar in form. An endless vista of blue columns appeared before them, and they set foot on solid ground. The Lesser One drifted before them as they walked.

"Are we awake, Mort?" Pete whispered.

"In my humble opinion we're not," Saunders returned. "Or else we are both quite hopelessly dotty. This business of the big ones and the little ones is too much——"

"No, Mort, look! There's Aleck Carter himself."

The avenue of blue pillars had opened out into a great amphitheatre where hundreds of the pigmy folk were gathered about the machine which had been taken from Rocket VII. And in their midst was Carter, the man who was possessed of more ill-gotten wealth and vicious commercial influence than any man in the history of Earth—bossing a gang of Terrestrials, riggers and mechanics, as if he were an ordinary foreman!

It all came to Pete then in a flash of understanding. Carter was reaching out for new worlds to conquer. If he could manipulate matters so as to obtain exclusive control of the supply of lunium, he alone of all humans would be able to traffic with the Martians and Venerians and with whatever races there might be found on other planets of the solar system. But to have risked the rocket trip himself; it was incredible.

"Huh!" Saunders grunted. "The old boy has let himself in for something *this* time. Look at him; his chest is puffing up like a pouter pigeon's. And he's yelling himself hoarse."

"This Terrestrial plans to move Luna to Earth and has promised the pigmy folk everything which is available there," came the mental advice of their attending sphere. "Everything, comfortable homes, fresh air in abundance for their weakened lungs, food for their primitive stomachs."

"What!" Pete shouted. "He's crazy. It can't be done; the tides of Earth would submerge the land. There would be——"

"Only too well are these things known to the Great Ones." There was dignity and patience in the unspoken voice of the Lesser One. "A vast cataclysm would result were this Terrestrial to succeed in his mad purpose. His own scientists should be able to tell him these things."

"Certainly, certainly," Saunders sputtered. "I myself, with my—huh—extensive knowledge of electricity and other natural forces might enlighten him. If he would listen."

"Electricity?" The mental reaction of the sphere was questioning. "That is the force the Terrestrial is using. It is unfamiliar to us and we would know of its nature."

Mort Saunders floundered hopelessly in the effort to explain. But it was apparent that the Lesser One gathered from his chaotic thoughts that which his rebellious tongue was unable to put in words.

"An elementary form of energy we have not developed," the sphere commented wordlessly. "Our own sub-electronic energy is greatly superior. But there are possibilities in this force, and we would guard against the evil that might arise from these possibilities."

"Then why not step in and put a stop to the thing?" the query rose to Pete's lips. "Surely the Great Ones are powerful enough."

"Yes," the Lesser One assented. "But you forget, Earth-man. The pigmies have their own minds in the matter. It is not permitted that we interfere with them or assist them unless they call upon us for help."

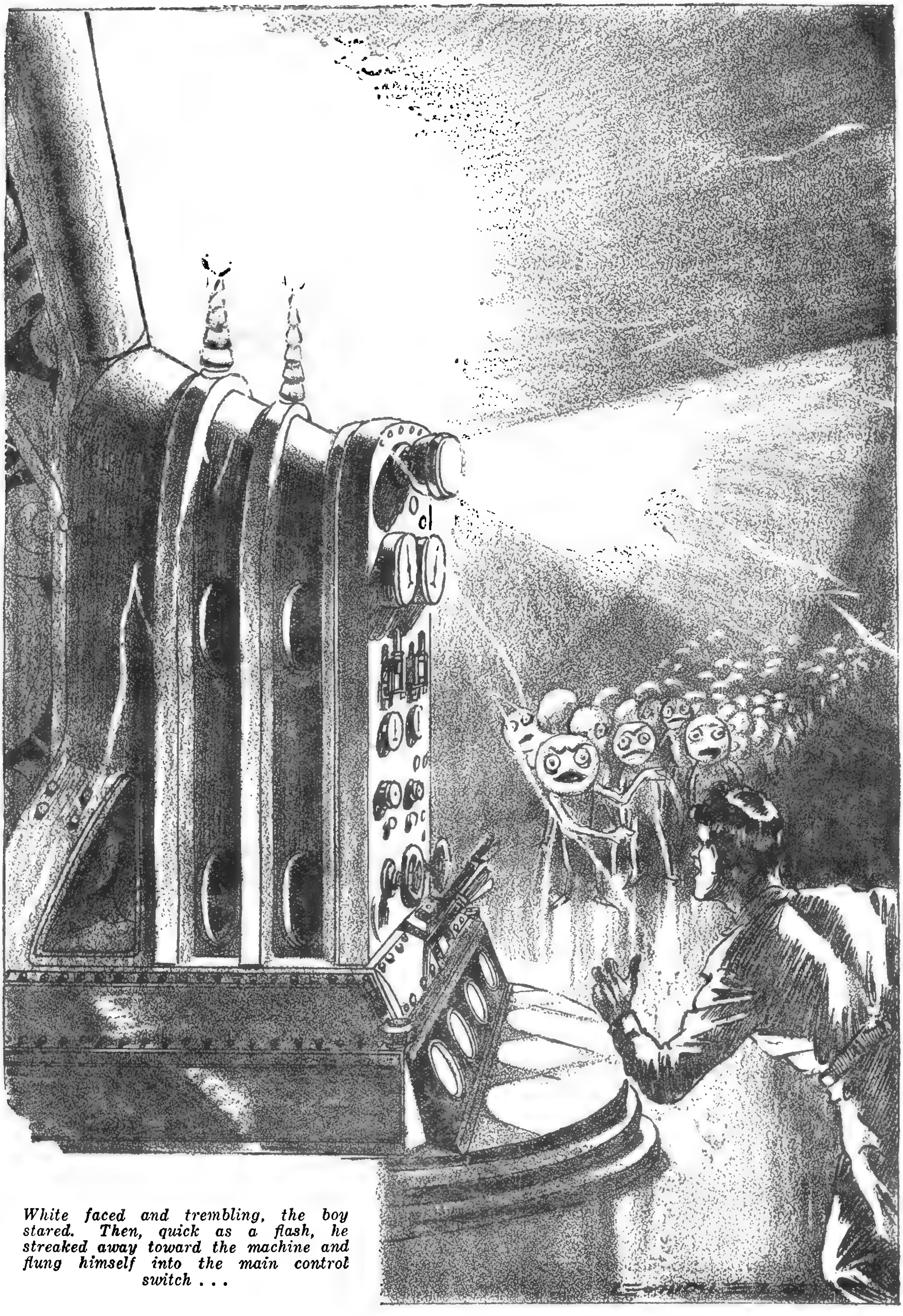
"It might be too late when they do," Pete growled. He had no idea as to what deviltry Carter was planning, but knew from past performance that it boded no good to the strange inhabitants of Luna—nor to his own world.

"That is true, Earth-man, and is the reason we have brought you here with your friend. The Great Ones approved of you and bid me work to the end that you might be enlisted in their service."

"You—you mean to try and forestall Carter's plans?" Pete ask incredulously.

"That is the plea of the Great Ones."

Plea! These incomprehensible brain machines and energy sources of the blue realm were capable of forcing their will on Earth, man and pigmy alike. They had superhuman power over ordinary matter and were disseminators of unknown forces that could be as de-



White faced and trembling, the boy stared. Then, quick as a flash, he streaked away toward the machine and flung himself into the main control switch . . .

structive as ten thunderbolts in one, yet they chose to plead with him and Mort. Pete could not bring himself to believe his senses.

"Huh!" Mort Saunders exclaimed. "We can do it, Pete. We'll show Carter and his gang. *We'll*——"

"Don't know as I'd go so far as to say that," Pete drawled. "You have an exalted opinion of yourself, Mort, and of me. But we can try."

Some unexplainable force radiated by the expectant Lesser One was permeating his being, buoying him up. Fantastic as were his surroundings, mysterious as were the activities of the Lunarians and of Carter, his old Earth spirits and courage were returning. In Aleck Carter and his gang of hirelings there was a tangible inimical force; these could be fought with their own guile and weapons. And in the Great Ones and the Lesser Ones there were powerful friends.

"We can try," Pete repeated softly. And the light of battle was in his eyes.

Mort Saunders grinned and tweaked his mustache apologetically.

A bright glow illuminated the surface of the Lesser One. In its approving telepathic reply there was exultation. And, quite as if the sphere had reached out with invisible arms to hand them over, their bullet projectors were restored to their hands. The Terrestrials gaped in amazement.

But the feel of the cold tube was comforting in Pete's hands. He fingered the weapon lovingly.

"You will likewise learn of the Dark Ones of Luna," came from the sphere. And there was sinister meaning in the telepathic flash.

Pete thought instantly of Slim Downey.

"No," came from the Lesser One. "The Dark Ones are of our own realm. The Terrestrial youth was returned to his fellows. His thoughts were not wholly good, although at first the Great Ones were inclined to approve of him. And so he was sent to rejoin his former associates."

With that information imparted, their attending sphere melted into the blue shadows of the great pillars and was gone. Pete and Mort stood there alone, gazing each into the puzzled eyes of the other.

"ILLUSIONS?" Mort whispered hesitantly.

"No, siree. Brain cases, these spheres, and *real;* impregnable housings of the most remarkable intellects in the universe. Superhuman minds with godlike emotions, and endowed with supernatural powers. All-seeing, all-knowing, all . . . oh, dammit, I'm talking like a preacher. You know what I mean."

"Yes." Mort Saunders turned toward the amphitheatre as in a daze. "But there's nothing supernatural about them," he argued. "It's only that they know of forces we can't comprehend. They——"

A whirring sound rose up from Carter's mechanism and they saw the pigmy folk scatter and draw away from the devil-machine of the Earth-men. Mort and Pete ran swiftly down the sloping floor into the arena.

Unnoticed by Carter and his crew, and unmolested by the excited pigmy folk, they wormed their way through the press and drew near to the scene of action. And then they saw that the floor was of transparent crystal. Beneath them yawned the great cavity of the blue realm, infinitely vast and mysterious. The enormous globes that were the Great Ones hovered over there in all their majesty and silent watchfulness like heavenly bodies in a cosmos *within* this strange world of ancient Luna. Living, thinking mechanisms of slumbering potentialities.

Carter's machine rested on skids that partly bridged the crystal floor. It was a ponderous thing and incorporated a mighty atomic power plant and two huge beam transmitters. There were frequently-converters as well, like those of the "Hornet," but vastly larger than hers.

"Lord!" Pete gasped, "the fool means it. He intends to energize the main lunium deposit."

"No—see there!" Mort returned. "The projectors are trained on the Great Ones themselves."

It was true; Carter's crew was preparing to send twin beams of ionized air across the gulf to carry the energizing frequencies to the very bodies of the Great Ones.

Thunderstruck, Pete stood undecided. They were in the shelter of a column where the blue light from below struck up to mingle with the rosy illumination of the high arches above. Of course they might ruin Carter's machine with their ultranite bullets—easily. But their own lives then would be forfeit. Even if they could overcome Carter's gang there were the pigmies to be dealt with. Thousands of them would stream in from the labyrinth of passageways; tens of thousands. And besides, Pete wasn't sure of his ground; he saw Mason and Thornhill over there by the machine, and Zimmerman—three of Earth's greatest men of science, whom Carter's gold had bought. Surely these men could not be contemplating a move that meant disaster on Earth.

His indecision was ended by a warning cry from Mort; a strangling horror-filled yell that caused Pete to whirl suddenly, crouching with his bullet projector in hand.

Behind them, a monstrous, black creature stood staring with red saucer-eyes; an object like a huge football poised on a single support that was more like the stem of a plant than the limb of an animal. Yet this thing was undoubtedly of the animal class—and intelligent.

One of the Dark Ones of Luna!

Pete pressed the release of his bullet projector, but, even as the propelling ray sped forth, the creature was covered with a shroud of green vapor such as that which had enclosed Rocket VII. The ultranite charge exploded with a deafening crash, but made no impression on the green armor. And a quavering wail of terror rose up from the throats of the thousands of pigmies. The great amphitheatre was in instant confusion.

A sharp mental command came then from out the green cloud; an order that carried with it the compulsion of a nameless force. Pete's grip of the bullet projector was loosened, struggle though he might, and the weapon clattered to the floor. He was rooted to the spot, his limbs trembling and muscles paralyzed. Mort Saunders had slumped to the base of the column, a quivering nerveless heap in the blast of energy that radiated from the Dark One.

With a twang like that of a snapped violin string, the green vapor disrupted, and the Dark One trailed off swiftly across the arena, its single supporting member drawing up within the mass of the black ovoid as a terrapin withdraws its limbs into its shell. Drifting in mid-air as the Lesser Ones did, the weird shape hovered in the midst of Carter's crew when it came to rest.

Others of the eery creatures converged on the scene and the shoutings of the pigmy multitude rose high and menacing. Aleck Carter had leagued himself with the Dark Ones of Luna.

Desperately Pete set his will to the task of unbending his cramped fingers. Muscles refused his bidding and his knees gave way beneath his stiffened body. He crumpled helplessly to lie on his face, staring into the depths of the blue moon, his numbed lips framing wordless supplication to the Great Ones.

And everywhere about him were the pigmies; cold scaly hands pawed at him and rolled him over. Vacant bulging eyes peered into his own; cavernous mouths of scarlet jabbered. He struck out feebly and to no avail. There was not the strength of an infant in his puny blows.

It was all over; they were carrying him and Mort to the center of the arena, to Aleck Carter and the Dark Ones.

NEXT they knew they were lying bound before a small rostrum near which Carter's machine had been set up. From it they could see that tier upon tier of balconies surrounded the arena, mounting into the high arches of the amphitheatre as far as the eye could follow. And these balconies groaned under the weight of the pigmy folk that crowded them.

It was a place of ceremonial; a temple. And Aleck Carter was in his element as he faced the multitude from the rostrum, one of the Dark Ones hovering at his side. The eyes of a world were upon him.

Pete knew that his strength was returning. His muscles answered to his bidding once more, but the bonds of the pigmies held fast.

"Huh," he heard Mort whisper, "Old Carter's putting on quite a show."

Pete grinned. Saunders was all right, and so was he. If only they could free themselves. Carter had paid them scant attention; he was too deeply engrossed in the matter at hand, and confident that his bodyguard could handle these interfering snoopers if the pigmies and the Dark Ones could not. He was secure in his newly established position of power.

Silence fell in the huge gathering place when a mental message of the ugly swaying mass, that seemed to be leader of the Dark Ones, swept out over the assemblage.

"The power of the Great Ones is at an end," it conveyed. "The gods of Terra have kept their word and have brought their chief god with his machine to carry the ancient world of Luna to the land of happiness and plenty——"

"It's a lie!" a voice screamed from near the machine.

"Thornhill!" Pete gasped. "He's rebelling."

The scientist, purple of face, was struggling with one of Carter's huskies, trying to make his way to the platform. They saw his arms raised high, and his clenched fists threatening the man whose dominance of so much of Earth's enterprise, was now reaching out here into the depths of the blue moon.

Aleck Carter's flabby jowls quivered with rage; his basilisk eyes flashed fire. "Away with him!" he roared, "We'll have no traitors alive here."

They saw the gray-haired scientist go down. There was a flash and a report, the gunmen drawing back as the disintegrating charge of an atomic projector found its mark. The body of Earth's most renowned physicist, who had made the mistake of bowing to the will of Aleck Carter, was a squirming, bloated thing on the crystal floor. Then, in a puff of incandescent vapor, it had vanished.

But Carter was shaken; his ponderous frame sagged as the gulping yells of the pigmies rolled out over the arena a vast screaming roar of amazed protest. The god-beings of Terra were not invulnerable.

"Thus perish those who oppose the chief god of our benefactors," the Dark One's voiceless message came instantly. "Keep to your places, pigmy folk, and observe the overthrow of the Great Ones."

Carter brightened and raised his arm in a signal to his men as the babel of pigmy voices was stilled in superstitious awe. And a shrill note of vibrant energy rose up from the throbbing machine.

Looking down into the blue cosmos, Pete saw the streaking light-pencils that stabbed out from the beam transmitters. Hundreds of miles beneath them a vast halo of white brilliance closed in on the Great Ones and caused them to draw together in a swift huddle. The crystal floor vibrated madly under the energy reaction and Luna's outer shell was set quivering.

Succeeding events came with confusing swiftness.

THE Great Ones, each a sphere of about seventy-five miles diameter, sent out long streamers of indigo flame and backed away from the man-made energy that attacked them.

Carter was shouting like a gleeful fiend; dancing like a lunatic there on the rostrum. And the telepathic voices of the Dark Ones were ghoulishly exultant. The Great Ones were retreating before the blasts of the Earth-gods' machine.

A whining chant came up from the pigmy folk, a mad cadence of superstitious, religious fervor. The sound was awe-inspiring in its immensity, ghastly in its triumphant emotion.

And then, as the Great Ones baffled ineffectually against Aleck Carter's forces, the blue abyss beneath the crystal floor became alive with swirling forms that gleamed blue-white in the darkening realm. The Lesser Ones, legion in number, darting hither and yon in a panic of uncertainty.

A slender figure detached itself from the group at the machine and came running swiftly to the captives.

"Slim!" exclaimed Pete, "Slim Downey."

"Yes," the lad sobbed. "I couldn't stand it. Know what this means? Carter's figuring on throwing the whole damn moon out into space where Earth's rocket ships can't reach it. He's energizing the Great Ones themselves—they're mostly lunium—and the major deposits of the raw metal, to force the moon out from Earth's attraction."

"What!" Pete yelled. Slim was working at his bonds with a knife and one arm was free. "*Out*, you say?"

"Yes, out. Not in toward Earth, as he told the Dark Ones and the pigmies—he's too smart for that. *Out.* He'll control all the lunium then, and be able to deal with the other planets without competition. Don't you see? He was going to kill all of you on Rocket IV; I was his spy there. And the pigmies, he'll kill. Pete, I'm afraid; I don't want to be shot out into space—God knows where. He's crazy."

"I'll say he is." Pete stretched and worked his arms and legs to limber them up. "Here, give me that knife."

He took it from the trembling lad and sawed rapidly at Mort's bonds. "Get that, Mort?" he whispered.

"Sure did; the kid's coming clean." Mort was free in a moment.

"W-what are you going to do?" Slim was blubbering.

"*You* do it!" Pete demanded. His eyes bored into Slim's.

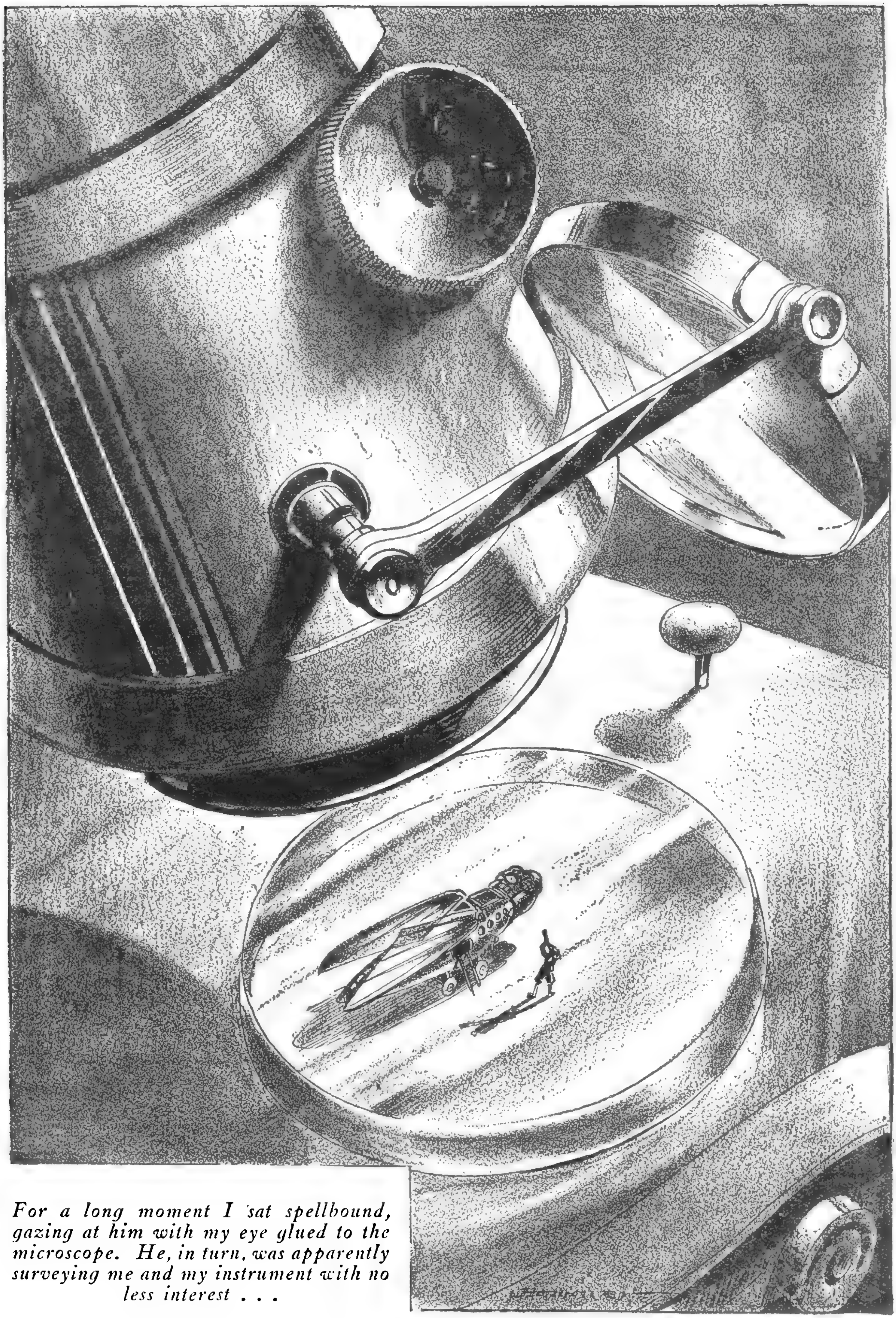
White-faced and trembling, the boy stared. Then, quick as a flash, he streaked away toward the machine and flung himself into the main control switch—bodily. Pete and Mort ran after him, yelling.

There was a bellow of rage from Carter. Agonized cries from the pigmy folk. And despairing mental outbursts of the Dark Ones. Pete was fighting Carter's gang now, back to back with Mort. Desperately slugging, unmindful of the consequences. And the high reaches overhead were suddenly filled with gleaming forms of the Lesser Ones, doing battle with flashing energies as the Dark Ones sought to get away.

Pandemonium broke loose in the balconies. Luna lurched sidewise and threw the combatants in milling, struggling heaps.

The rest was confusion. Pete saw Otto Zimmerman scramble to the rostrum and jump astride Aleck Car-

(*Continued on page* 140)



For a long moment I sat spellbound, gazing at him with my eye glued to the microscope. He, in turn, was apparently surveying me and my instrument with no less interest . . .

Insects Extraordinary

By Walter Kateley

Author of "The Hollister Experiment," "Remote Control," etc.

ENTOMOLOGISTS have discovered that some species of insects—notably the ant—is endowed with intelligence. It has been said before—and has been proved true in certain parts of the world—that ants might, by sheer force of number—become a serious menace to the world of humans. Recently, however, the idea that insects of various sorts are fast becoming a real menace is growing. And it seems to us—no wonder. But perhaps there is still another side to the story of insects! Mr. Kateley offers us such a side in this odd fantasy, in which he includes many ingenious ideas and plans, scientifically arrived at, and cleverly worked out.

Illustrated by MOREY

"YOU know, I feel as though we were on the verge of a great discovery!"

Warner stopped in the middle of the floor with his big microscope in his hands and looked down at me kneeling before a half-filled packing case as though to make sure I was giving proper attention to his remarks.

"I only wish I could approach my own work with such enthusiasm," I replied.

"No," he corrected, "it's not exactly enthusiasm; it's more like a presentiment. I don't say it will be my luck to do it, but I do believe that some one is going to make discoveries concerning these Zatts that will go far beyond ordinary entomological research."

"They are such strange creatures," he went on, kneeling to put the heavy instrument in its specially built case, which I had set on the floor to give more table room for sorting.

"There has been so much mystery about their appearance and disappearance, their extraordinary habits, and the experiences of investigators have been so altogether weird and baffling that I am convinced that these Zatts are no ordinary bugs."

"That's why," he resumed after a moment's pause, "I am taking our own microscope in addition to the regular field equipment. I only wish the department would stand for the expense of our going by plane instead of by train and boat. Like as not the Zatts will be gone before we get there. They only stayed in Wisconsin about a week last year."

I was somewhat flattered by his speaking of "our" microscope. It was an exceedingly liberal recognition of the minor part I had played in its construction.

Some five years before I had become acquainted with Warner through the mere accident of having lived across the hall from him at the "Beaver," a sort of bachelor home, half rooming house, half hotel, patronized by Washington's government employees. I had been attracted by his half serious, half humorous ways; his optimistic outlook on life and, above all, by his altogether whole-hearted, contagious and care-free laugh.

I had lost no time in making friends with him. I felt as though I were acquiring a volume of superior poems or a fine musical instrument or any other of the luxuries of life. I counted that I had found something to relieve the humdrum routine of life in the government patent office.

I soon learned that he was a junior assistant entomologist in the Department of Agriculture. His hobby was optical instruments and lenses. Later he succeeded in developing a combination of special lenses which he hoped and finally believed would treble—or at least double—the power of the most up-to-date and best equipped microscope on the market.

Knowing that I had to examine many optical and surgical instruments at the Patent Office, he judged that I would be familiar with the mechanics of such instruments and so invited me to help him develop the mountings and adjustments for his proposed instrument.

I entered into this work with enthusiasm, and although the requirements of the case involved a great many intricate and complicated details, we emerged at last with a device that bade fair to realize my friend's highest hopes. However, he had not had time to test it fully, either as to the superior power of the lenses or the efficiency of the operating devices when the unexpected call came to go into the field to investigate the Zatts, a field, by the way, located in the tropical south.

And so here we were, hurriedly packing, in order to leave on the evening train.

In the morning I received a telephone call from Warner. In high spirits and great excitement he told me that he had received an emergency assignment to go south and investigate the sudden appearance of the "Zatts," of which we had read in the morning papers. His assistant was sick — Warner was now a full-fledged operator—would I like to go with him? He could secure for me a temporary emergency appointment.

Would I like to go with him? It was nearly time for my annual vacation. I had not used my allowable sick-leave days of absence; I had long contemplated a visit to the tropics; this seemed a providential opportunity.

Quickly obtaining leave of absence, I grabbed my coat and hat and hurried back to the "Beaver." Warner was already there, making up his outfit.

"Good man," was his brief comment. "Thought you'd be with me."

I fell to helping him pack.

Two hours later Warner announced his conviction that we were on the verge of a great discovery.

The time for our train was not far off, and we still had a great deal to do, so I reserved comment for the time being and applied myself to the work at hand.

Just as we were about to leave the house, Warner was called to the telephone, and I held the taxi while he talked.

"It was that pest De Morse," he announced as he hurriedly rejoined me; "he is going out for the Foundation. I don't know how he found out I was going, but he called to ask me to go with him. He can't get away for two days yet, but he wanted me to wait for him! Imagine the nerve of the man; I wouldn't want him along, anyway. The less I have to do with that fellow, the better I like it. Even his name annoys me. 'Calvin Learned De Morse'? His initials ought to be C. A. D. instead of C. L. D."

He laughed in his own inimitable way and lapsed again into his habitual good humor.

I KNEW De Morse only slightly. My impressions were of a large, somewhat egotistic and rather ill-mannered young man, who prefaced most of his remarks with I's, and who seemed to be strikingly devoid of those personal traits which one naturally associates with the methodical and painstaking temperament of a scientist.

I imagined he had secured his position with the Foundation through some political pull or high finance intrigue, rather than through any personal ability. I heartily shared my companion's aversion to being associated with him, and felt that we were happily rid of him.

Once settled for the long train ride, we had opportunity to discuss our errand and to consider the nature of the strange little creatures, the Zatts, on whose trail we were expected to camp. Warner knew considerably more about them than I did, since they were, so to speak, in his own bailiwick; but it soon transpired that even our combined knowledge was somewhat meager.

These tiny creatures, scarcely more than a sixteenth of an inch long over all, had appeared for the first time—so far as science was aware—in a sparsely settled region north of the Baltic Sea. They had spread over a large territory, but stayed only two or three weeks, disappearing without doing any appreciable damage to crops or other property.

The locality was so remote and the insects' stay so brief that no reputable entomologist was afforded an opportunity to study them or their habits. Three years later they appeared in several counties of northern Wisconsin and Minnesota. During their few days' stay, they were carefully observed by a number of local and more or less amateur entomologists, and by Professor Arnold B. Zatt, a zoologist of some renown.

Professor Zatt prepared a description for the Entomological Society of America, and the species was named for him.

Shortly after submitting the description, however, the professor asked to have its publication postponed, saying that he believed it to contain certain errors of a fundamental nature, and that he wished to revise it.

But his request came too late. The description had already been published. Soon after, the professor went abroad. It was understood that his health had suddenly failed. He did not return, but went into seclusion in some mountain health resort.

Warner said he had learned through private sources but on good authority that the professor's wife had told a few close friends that her husband had been the victim of a practical joke!

It seemed that the specimen captured and examined by Professor Zatt had been stolen, presumably by mischievous college students, and a cleverly constructed metal and fabric model was substituted.

The entomologist had not detected the trick until after he had prepared and submitted his description. Then, one day, he discovered the deception quite by accident. Being unable to determine of what stage in his work this substitution had been effected, and fearing some of his observations had been based on the appearance of the dummy, he had made a tardy effort to withdraw the description.

For some strange and unaccountable reason, no one other than Professor Zatt had succeeded in preserving a specimen.

In the first place, although the insects had appeared in great numbers and over a large area, they seemed especially shy and elusive, and because of their great agility were very hard to capture. Then, too, their very diminutive size had rendered them both easy to lose and hard to preserve from decomposition. It seemed to be a common complaint that even mounted specimens vanished completely, leaving no trace!

Little or nothing was known of their manner of reproduction. No eggs were discovered, and no partially grown or immature specimens were reported.

But perhaps the most striking and altogether unique characteristic of these creatures was that they appeared to attack metals of all kinds, especially steel and copper. Wires, bridges, machinery—in fact everything of hard metal fell a prey to their ravages. Little actual damage was reported, since only the surface of various objects had been removed.

"Perhaps," observed Warner whimsically, "they only need a little iron for a blood tonic."

He had brought with him a copy of Professor Zatt's description in the Annals of the Entomological Society of America. It was clearly and concisely written, and we studied it with new interest.

A new species of Odonata from Wisconsin.
By Zatt.

Odonata Likelullidae Anax minutus. New species. This most unusual species of Anax is differentiated from all other species of this genus by its extremely diminutive size; being only 2mm. in length, with a wing spread of 4mm. Body elongate; general predominating color, metallic blue. Head and eyes brilliant iridescent green. Pronotum streaked with bright red. Abdomen dotted with yellow. Median dorsal yellow streak with lateral dark lines on either side.

—"Rather bizarre scheme of coloration for Odonata," observed Warner.

Observations as to habitat and feeding stressed the fact that this species was restricted to districts remote from human occupation, and that they fed to some extent on metallic substances.

AFTER two days' travel, having left the main line and crept along for several hours on a branch road, we arrived at Bantry, the nearest station to our destination.

Bantry we found to be only a jerkwater station with two or three stores, a post office and a garage.

From here on it was necessary to go by boat. But there were no boats to be had.

A full day was lost before we succeeded in hiring a fishing boat from a fisherman who was laid up with blood poisoning.

A helpful neighbor showed us how to operate the boat, and we got our luggage aboard and prepared to set out; having first secured all available information as to the locality where the Zatts had been seen.

As we were embarking we heard a train coming into the station. In a few minutes lusty shouts came from that direction and a man came running toward us, calling on us to wait.

It was De Morse.

He had traveled by plane as far as he could on the regular mail route, and then taken the train. Since we had the only available boat, we could hardly refuse to take him along, albeit he was about as welcome as the smallpox.

In order to save time, we all went back for his luggage. At that he had to hire a bystander to help carry it. Warner thought he must have a tent outfit for himself and another for the Zatts.

It was a balmy, beautiful day when we started. As we passed along through the narrow passages and out across the clear, shallow bays, a panamora of tropic beauty such as we had never seen before greeted our Northern eyes.

In one shallow lagoon a flock of tall, snow-white herons waded, posing and preening in graceful attitudes, seemingly unmindful of our presence. Their long shimmering reflections waded or posed with them, or perhaps did a little fantastic dance on their own when the glass-like surface of the water was disturbed by some tiny vagrant breeze.

In another pond a school of mullet was at play. They sprang out of the water in long, graceful curves, sending up a spray of silvery drops, as they descended, which glittered and sparkled in the morning sunlight like a shower of diamonds.

Long, shining, silvery-white fishes swam in the crystal-clear waters beneath us and mingled with the butterfly-tinted angel fish; multitudes of quick little zebra fish darted here and there.

Beside a narrow lagoon the tropic jungle came right down to the water's edge. Indeed, a few thirsty banyan trees were wading out a little way, until the tide rose halfway to the crooked knees.

Long festoons of soft gray Spanish moss bedecked the giant live oaks; while exquisite orchids and a multitude of other air-plants grew in profusion high up amid the branches of trees that seemed to be holding them out for us to admire.

Stately and picturesque palms rattled their fronds soothingly in the breeze and mingled their reflections with those of the colossal cypresses where the waters of the lagoon were still and smooth as a mirror.

Through all this Warner and I sat in the stern, our eyes glued to the surroundings. Only the necessity of guiding the course of the boat could distract our attention from the enchantment.

But all unmindful of the world about him, De Morse sat in the bow writing letters on his portable typewriter. We wondered at his complacency. Or was it density?

"You kill him," demanded Warner in whimsical exasperation. "I've got a lame arm."

But I declined, on the grounds that he was too dead already.

In later afternoon we arrived at the head of the little inlet beyond which we had been advised to make our camp.

Here, in a picturesque little grove surrounding a clear spring some twenty or thirty rods from the shore, we pitched our tents and established our paraphernalia.

Of course we had to help De Morse with his tent; but we made it a point to place it well apart from our own. To his eager proposal that we cook and eat together, we turned a deaf ear.

We had no intentions of taking on a boarder. His supplies, hurriedly bought while we were stowing his luggage in the boat, consisted only of a strip of bacon and some tinned biscuits.

"I will buy something from the natives," he had declared confidently. "There will be some one living somewhere near."

We were now in the immediate neighborhood of the locality where, if we were to believe the reports, the Zatts were to be found. But we saw no signs of them while we were making camp.

It was so late when we finished, that we decided to postpone further search till morning.

Warner was so impatient to get started that he scarcely slept, and we were up at the first peep of dawn.

While I concocted a light breakfast over the embers of our campfire, he scurried about far and near for what he called the "bugs."

Since he found nothing, it was evident that we would have to go farther afield. So when we had eaten, we took our collecting outfit and set out across country. Meanwhile we had seen nothing of De Morse. No doubt he was still sleeping, and we were only too glad to let him sleep.

We had two hand nets of very fine mesh and a smaller one, at the end of a long bamboo fishing pole. We also had a small sweeping-net.

The countryside seemed alive with all manner of flying and creeping things; many of them were new to us, and Warner found it hard to refrain from lingering to capture and scrutinize a host of interesting specimens. The Zatts were our objective, and he was resolved to waste none of our precious time on other things. Even now we might be too late. Perhaps the Zatts were already gone.

There seemed to be no one living in the neighborhood; but we saw a small sawmill beside a clump of cypresses. Here and there were a few patches of bush and standing timber, but in the main the country was fairly open and walking was not difficult.

We tried to take note of our bearings so that we would not get lost, and made a wide swing about the camp. Not until nearly noon did we find any signs of our quarry. Then, as we came out of a thicket by a small stream, we saw a cloud of some sort of flying things several rods ahead of us.

They seemed to be rising from the ground.

"That must be our game," shouted Warner, quickening his pace.

But the cloud of insects kept their distance, while more and more rose from the ground and joined them. We hurried after, but they were as swift as we. So we stopped and searched in the grass and among the bushes, hoping to find strays. With the sweeping-net we combed patches of grass and soil. It proved to be a fruitless search.

Meanwhile the clouds of flying things settled back to earth; only a few remained aloft, as if to act as lookouts for the rest.

"Well, I feel like a city detective," declared Warner, after he had made a fruitless dash with the net on the end of the fishpole—"always baffled." And he laughed as naturally as though he were back home at the "Beaver." I was footsore, hot and tired, and scratched with brambles; but I laughed, too. I couldn't help it; his merriment was always contagious, and he usually gave two or three little preliminary snorts before cracking any joke; snorts that were so full of pent-up mirth and whimsicality that you were moved to laugh with and at him regardless of the thought that was amusing him.

We moved on, in the hope of finding a locality where the insects were more numerous or less afraid.

IN the distance we could see another sawmill, apparently deserted. Remembering the reputed taste of the Zatts for all things metal, we decided to visit it.

"Perhaps they will invite us to join them at their dinner of saw teeth and boiler iron," said Warner hopefully.

It proved to be a good idea—I mean that of visiting the place. We saw clouds of the little creatures all about it as we approached. But they took wing before we got near enough to reach them with the long-handled net.

Upon examining the machinery, we found that its surfaces in many places had been attacked, leaving large shining blotches.

Returning to a clump of nearby bushes, we allowed the Zatts to return to the machines; cudgeling our brains the while for some scheme whereby to make a capture.

Warner presently had an idea.

"We will throw the net at them, parachute-wise," he announced.

Taking one of the nets, he fastened it open with twigs. Then with coarse thread from our emergency kit, he suspended a stone, after the manner of a parachute leaper, from its round rim.

Cautiously, he approached the mill; and when the insects, commencing to rise, formed a little cloud, he let fly his net. It passed through a fringe of the cloud and fell on a pile of sawdust. I ran to pick it up. We examined it eagerly, but it was empty.

After waiting a few minutes, Warner made another cast; this time with better results. Two of the little fellows were bagged.

Through the pocket magnifier, they looked just like diminutive dragon flies, often called devil's darning needles or spindles.

"They are unmistakably of the Odonata order," observed Warner, "a sort of miniature replica of *Anax junius*."

"We will kill this one," he went on, dipping one of them in his cyanide jar; "but we will put the other one in the live-box."

We were a jubilant and well contented pair as we jogged back to camp.

De Morse was nowhere to be seen; but it was evident that he had prepared some sort of meal at our campfire, and our little coffee pot had been moved over to the makeshift table in front of his tent.

It was midafternoon, and we had breakfasted early. Needless to say we were as hungry as a pair of wolves after our long tramp. But Warner was too taken up with his new specimens to consider my proposal to rest and eat.

"I want to have a look at one of them through the low power lens," he declared. "Later we can make a careful examination."

So, while he was fussing with details of setting up the folding card table and fixing a microscope stand, I brought water from the spring and set to work to make a quick lunch. When the food was ready, the young scientist came away from his instruments very reluctantly.

"They are strange creatures," he mused, more to himself than to me, I fancied.

For a few minutes he ate in silence.

"How did you get on?" I asked curiously.

"Excuse my rotten manners," he apologized, coming out of a brown study. "I had quite forgotten for the moment that your curiosity must be as great as my own. I didn't get very far, though I did get one look at the beast; rather at the front end of him. I am using the dead one, because the live one will have to be handled so carefully to keep him from getting away. You know how elusive they are reputed to be. And I am taking no chances of the other one's coming to life and flying away! The first thing I did was to cut him in two, I am like Caesar," he explained with one of his little preliminary snorts; "'divide and conquer.'"

But his spontaneous and jubilant laugh, in which I joined heartily in spite of my weary legs, was of short duration.

"I never saw such legs," he went on seriously; "they look more like pieces of machinery than real insect legs; and the luster is more that of metal than of chitin.

"The front legs appear to be fitted with ordinary two-clawed feet. But the second pair have extremities that look for all the world like wheels! I suppose the feet must be so curled and curved as to produce that effect. I was just making an attempt to straighten one of them out when you called me. It couldn't *possibly* be a wheel, of course. There is no such thing in all nature. The wheel is man's own invention. And besides, if there had been anything so startlingly extraordinary about the thing's feet, Zatt would have noticed it and reported the circumstance."

"Well, it was known that the professor's eyes had been failing him for a number of years; student assistants did much of his actual seeing for him. Perhaps they overlooked much of importance.

"Besides," I added jokingly, "this is the age of evolution. Maybe the Zatt has developed a wheel since the old scientist made his observations. Look how the King's charger has become a motor car."

Warner made no comment but mused deeply.

"Of course, it is only a resemblance; it may be only an optical illusion," he decided; "but I still say these are the strangest insects I ever saw."

It was hot and still, and so after eating we lay down in the shade of a tree to rest. Fleecy clouds were drifting lazily overhead, and we fell into a discussion of their height and composition. Presently I dozed.

I was roused by Warner saying, "I believe there is one of them now." I opened my eyes to see him half sitting up and looking at something apparently a few feet to one side and above him.

"One of what?" I asked.

"One of the Zatts."

"Oh, you are dreaming," I bantered. "You've been thinking of them so much lately that you see them when you shut your eyes."

But I bestirred myself with interest, and soon made out a tiny insect, hovering almost stationary. It was so small, we could not identify it for certain; and when Warner rose to get his fine net, it darted out of sight.

"Well, let's go and have a little session with the ones we have," suggested Warner, aroused by this time; together we went into the tent.

"I put the parts into the glass," he observed as we approached the table, "so they wouldn't blow away."

Suddenly, he was all excited. "What's this? Something is at the one in the glass!" Picking up a little magnifier that lay on the table, he peered through it, while with the naked eye I made out a little group of metallic-looking insects.

"It's two other Zatts," Warner announced; "yes, it is, sure enough," he continued after a little further scrutiny. "They must have come to the funeral. But I only see one piece of my specimen. Can it be they have eaten it up? Bring the net. Or wait. I will get them this way." He made a quick move to clap his hand over the glass.

His movement must have been anticipated, for quick though it was the insects escaped and flew above our heads.

Warner looked up at them with a baffled expression, then down at the glass. "They have taken the specimen!" he exclaimed. And indeed, the two insects did seem to be flying together, as though carrying something between them. But before we could interfere, they darted away out through the open flap of the tent.

"WELL, I'll be blessed. That's positively uncanny," complained my companion as he flopped down on a stool and looked ruefully at the empty glass.

"Anyway, we have learned something," he admitted with interest after a moment. "We know how so many fellows lost their specimens. I suppose the Zatts must be cannibals. Probably there are scouts and strays all about here."

With extreme care and caution we took the remaining specimen out of the live-box and inserted it between parallel slides of the thinnest possible glass. He seemed to be either dead or in a state of suspended animation; for even by the aid of the little microscope, we could see no sign of life.

Now under magnification, I saw how metallic and un-insectlike the thing really was. It struck me at once that the wing veins were entirely unlike those of any insect wings I had ever seen. I called Warner's attention to this. While we were discussing the matter, De Morse asked to be allowed in.

Rather reluctantly we agreed.

He had been out on a hunting expedition for himself, he said, but had found nothing. He seemed to be put out about our having gone without him. However, he examined our specimen and was much interested in the account of our experiences.

But when we told how we had lost our other specimen, he smiled incredulously and insisted that we were "having him on." He wanted Warner to dump the remaining Zatt out from between the slides to see if he was really alive. Then he "borrowed" some eggs for his lunch and left, saying that he would like to accompany us if we went out in the morning.

Meanwhile it had clouded over and soon became so dark that further observations were out of the question. Later, it commenced to rain.

"I believe De Morse thinks we are spoofing him," observed Warner, as we sat listening to the dash of the rain on the tent. "I am sure he doesn't believe a word about the disappearance of the bisected specimen, and I think he even suspects that the specimen we have is bogus. He believes we are pawning off a dummy on him. I'm sorry we couldn't demonstrate that it is alive."

"But really, I don't care," he amended; "the more I see of him, the more I like insects."

We turned in early and had a good night's sleep; but though the morning was bright and clear, we felt no inclination to go afield. Warner had a blistered heel that by now was so sore he could scarcely bear his boot, and I was lame and footsore from the unaccustomed exertions of the long hike.

Our neighbor was about at times, and after borrowing coffee and several other things to eke out his bacon for breakfast, he urged us to show him where the Zatts were to be found. We declined but gave him explicit directions how to get there, and assured him he would have no trouble finding the place.

Rather reluctantly he set out alone.

"He'll find them all right," said Warner; "but I wonder how he will contrive to catch them. You will notice," he chuckled, "that I studiously avoided telling him about our 'parachute' device. Let him figure out something for himself. And as for us, let's rig up the big microscope and get the lowdown on our bug, while there's a good light."

So saying he brought the large instrument case out from the pile of luggage and together we got the big machine unlimbered for action.

The long focal range of this machine was such that we hoped it would eliminate the chief weakness of the ordinary high-power instrument. The focal length of the 1,000-diameter microscope—this power is only attained by an oil immersion lens—is so small that it gives but a one-dimension image; that is to say, an image that is in a single plane, and has no depth. One sees only the contour, the bare outline, of the object examined.

But Warner had succeeded, by the use of a series of compensating refractors, in securing an image approximately equal in depth to that obtained by a common 30-diameter lens. This we considered a decidedly revolutionary improvement.

It was a great moment for us, when all was in readiness for the examination. We were about to test the practical value of the instrument, in which he had placed such high hopes, and on which he had lavished so much work and thought. At the same time perhaps we might procure minute and definite knowledge of the structural anatomy of these strange little creatures, about which the whole world was agog.

I could see Warner's nerves were tense; and I detected a nervous and husky note in his voice as he attempted some pleasant commonplace while taking his seat at the instrument.

I stood beside him, ready to lend any possible aid.

For a few moments he said nothing, only giving voice to a couple of little grunts of satisfaction. Then he announced in a voice full of excitement and incredulity:

"It's a wheel, sure enough; with spokes, tire and all! Hum-m-m; that's queer; like—like—the mechanical limbs of a robot!"

He shifted the object glass and adjusted it again.

For a moment he peered into the eyepiece. Then with a great gasp of amazement, he shouted:

"It's a machine! The whole thing is just a machine! "I can see sprocket wheels, levers and cables," he went on breathlessly.

I was too surprised to make any coherent rejoinder. I merely waited in tense excitement while Warner continued to gaze. After perhaps a minute he leaned back and regarded me with a happy but somewhat dubious expression.

"You don't suppose it could be any kind of strange tropical fever that's making me see things? This is altogether preposterous and impossible. We'd never dare to report it. They'd say we'd gone nuts. It's—"

"Well, get out of there and let *me* see," I interrupted, with some impatience, for I was consumed with curiosity. "I'll soon tell you if there's anything to what you say."

What I saw was no longer a tiny winged insect, but a perfect little flying machine of burnished and polished metal. In main outlines it was still a perfect replica of a devil's darning needle; but at the junction of the wings with the body, I could see complicated masses of gears, resembling modern differential units, except that they had more members.

An opening in the body—which was plainly fabricated from plates of metal—revealed a mass of mechanical devices, levers and controls that was truly bewildering. The head, formed largely of slightly colored but transparent sections, afforded room for a number of devices suggestive of the navigating instruments on shipboard.

Hardly had I placed my eye to the instrument before my companion was plying me with excited questions?.

"Do you see it? Have you got the focus right? Tell me what you see!"

"It's a machine all right," I assured him. "Nothing else but."

"Well, then, I believe it," he admitted, flopping down on a camp stool and sweating profusely.

"Let's go out to the spring and get a drink; have a little fresh air," he proposed after I had taken a long look at the image in the glass. "Then we can talk this over."

"Whoever builds these machines must be endowed with human intelligence," he reasoned as we left the tent; "and just think how small they must be! Perhaps they are there now, but so small they are invisible even through this glass."

"By the way, old man. What do you think of our good old microscope now?" he asked with enthusiasm.

"I think it is the greatest thing yet; and I really should have been congratulating you on your great success, instead of discussing this mechanical bug; for it is not so much the marvel of what we see, as the marvelous fact that we are able to see it at all that is of importance."

"But this hand-built insect," he insisted, "is a bolt from the blue. We *must* find the builders; unless as I say, they are too small to be seen at all."

"They could hardly be that small," I argued. "They would lack the cranial capacity to accommodate an intelligent brain, or whatever it is that enables them to make these things."

"Oh, I don't know. In Nature's economy size is only relative. It really doesn't mean anything. The ant is more intelligent than the cow. A honey-bee knows more than a rhinoceros."

"Do you know what I think?" asked my companion stopping short in his tracks as though struck by a forceful idea—"I believe they are inhabitants of some other planet, and they are only visiting the earth! That's why they were never seen until within the last few years. Probably they only learned to make these machines recently."

"Shall we tell De Morse?" said I.

"No, I guess we had better not," responded Warner after a moment's thought. "It probably would be of no use to tell him. He wouldn't believe us. He would think we were only spoofing again, and no one could blame him."

"If he were to tell *you* such a yarn, you wouldn't believe it."

"No," I agreed, "of course, I wouldn't. And I don't suppose any one else will believe such a thing is possible."

"They won't," said Warner gloomily. "That's what's worrying me. The insane asylum is already yawning for us, but we must make a report to the government. They are paying our salary and expenses, and will naturally want to know what we're doing. I suppose we may as well come out with it, and then rest on our oars until it has been demonstrated that we are right."

OUR discussion was cut short by a blast of wind, followed by a sudden downpour of rain. We were driven into the tent, and we had to forego further observations for that day.

Shortly after noon De Morse returned, rather damp and bedraggled and manifestly disgusted. While he had succeeded in finding Zatts in great numbers, they had evaded him completely, and he returned empty-handed.

"How did you birds catch them?" he demanded.

"Well, we did have a lot of trouble," admitted Warner, "but we finally got two; one of them you saw for yourself."

"Yes, I saw it; if it really is one," the big fellow growled, and stalked away to his tent.

We saw but little of him during the remainder of the day. He even made his own campfire to cook his bacon; and, contrary to custom, refrained from asking us for even a cup of coffee.

"I hope he gets so peeved that he packs up and goes back to Washington," was Warner's only comment.

At Warner's suggestion I got out the portable typewriter and we set to work by the dim light of the battery lantern to get up our report. He dictated while I typed, stopping to discuss how best to impart the knowledge of our great discovery without expressing any opinions or personal beliefs that would expose us to undue criticism from jealous or incredulous scientists.

We decided the report should be sent in as soon as possible, in order to make sure that no one else should beat us to it; "steal our thunder," as Warner expressed it.

So it was planned that in the morning, if the daylight proved good, we would make a further observation, complete the report and start it on the way, together with a specimen, securely packed.

We discussed and tried to visualize the headlines that our discovery would bring forth, and the piffling non-sequiturs, the reporters would indulge in as is their custom in dealing, half jocularly, with all great scientific discoveries. As a matter of fact, I suppose we gloated not a little over our achievement and good fortune.

Several times during the evening we heard a noise outside the tent. At length we became suspicious. "It must be some prowler," Warner whispered. The next time we heard a faint sound he sprang up and darted out of the tent. Just outside the door flap he came face to face with De Morse.

"Hello!" said that gentleman, completely unabashed. "I was just coming in to ask you if you could spare me some ink for my fountain pen."

When we had given him the ink—which we felt sure he did not want—and he had gone, we sat looking at each other in disgust and dismay.

"I'll bet he's been snooping around here the whole evening," Warner commented; "I wonder what he made of it." Lowering his voice, he continued, "I don't mind telling you I'm afraid of that fellow. I believe he would murder a man with as little thought as he would swat a mosquito."

The next morning we were up early, for there was much we had planned to do. De Morse came over while we were still at breakfast.

I told him I was going to town to buy supplies, and offered to shop for him.

He was most affable, and made out a little list of groceries which he gave to me, together with a twenty-dollar bill.

Then he asked to borrow my rifle. His supplies were nearly gone, he said, and most any kind of game would help out.

AFTER Warner had examined the specimen Zatt again, and had made some further observations to be embodied in our report, I was moved to take another look. By some mishap I bumped the slides with my hand, disturbing them from the position in which my companion had been at such pains to place them.

Looking through the eyepiece, I endeavored to shift the object back into focus. And it was then, in the moving panorama that passed before the glass, that I saw something that arrested my attention, although it was obviously not the form of the Zatt.

I made an adjustment at the focussing wheel, and there sprang into view such an amazing and altogether unexpected sight that I know I shall never forget it.

There stood a tiny fellow; unmistakably a human being! He held in his hand what looked like a long telescope; and as I gazed dumbfounded he limbered out the instrument and hoisting it aloft, stood peering up at me like some explorer viewing a lofty mountain.

His clothes were more like the knickerbocker suits of colonial times than any modern costume; but aside from this nothing seemed to set him apart from men of my everyday acquaintance except, of course, his microscopic size.

For a long moment I sat spellbound, gazing at him with my eye glued to the microscope. He, in turn, was apparently surveying me and my instument with no less interest, for he stood immovable as a statue.

At last I called for Warner. He was just leaving the tent to go to the spring for a bucket of water.

"Wait!" I shouted after him. "I want to show you one of the aviators from the airship Zatt!"

"One of the *what*?" he ejaculated, dropping the bucket and looking at me to make sure I was not joking.

Without waiting for my reply, he ran to the microscope.

"What! A man!" he exclaimed incredulously, as the image caught his eye. Then a moment later, with great satisfaction and conviction: "Yes, sir. A perfect little man."

"And he's got his own telescope!"

"Here are more of them," Warner went on a few minutes later. "They seem to have a little camp beside the machine, and they have just finished a meal. There are four of them. I think the one with the glass must be the skipper, or pilot."

For the next hour we were so engrossed with what was going on about the Zatt that we thought of nothing else.

Evidently the little people were engaged in some absorbing enterprise, for they soon went back to the Zatt and busied themselves with a mechanism that protruded from the forward end of the machine, not unlike the bill of a mosquito. Portions of gears and pulleys were exposed, and we soon perceived that it was in operation.

"Maybe they're digging a well," I hazarded.

"I think it's much more likely they are trying to cut their way out of their glass prison," said Warner.

"But if you're going to town today, you must get ready," he continued glancing at his watch. "While you shave, I will add this new material to the report and pack the bug for you."

A few minutes later we heard a faint little tap at the microscope, followed by the tinkle of broken glass. As one, we turned to the instrument, just in time to see a tiny wisp of smoke or dust go drifting away.

"They are blasting," declared Warner with quick-witted comprehension, as he picked up a piece of thin glass.

An instant later he warned: "Look out! He's trying to get away!"

Snatching the towel, which I had in my hand, he pounced on the microscope stand, just as the little insect scudded into the open and took wing. He was caught in the folds of the towel, and after a mad, excited scramble returned to the live-box.

"Well, that settles it," said Warner. "We can't send the bug to Washington either by mail or express, because with such tools and ingenuity it might escape from almost anything."

But I was loath to give up the project.

"We might put it in the cyanide killing jar and ship it dead."

Warner thought deeply. For a moment I thought he was about to agree with me. Then he shook his head.

"No," he said, "I couldn't do it. That little man looked so much like our landlord at the 'Beaver.' I might sacrifice the rest, but I couldn't murder Mr. Taylor."

There seemed nothing to do but to send the report without the specimens, so I prepared to set forth.

Warner had prepared two short telegrams, one to the home office and one for Science Service, which announced briefly that we had discovered the Zatts to be mechanical contrivances and that they were manned and controlled by microscopic operators. It was deemed wise to send these announcements on by wire, lest some one else beat us to the scoop, as Warner so tersely put it.

He had intended to accompany me as far as the boat, but now we decided that it was hardly safe to leave the tent alone, so I set out by myself, carrying my grip.

Just as I was pulling out from shore I became aware of hurrying footsteps, and looking up I saw De Morse covering me with the rifle.

"No false moves now," he warned, "or I will put your light out." His voice was so hard and menacing that it could leave no doubt as to his sincerity.

"Let's go," he ordered, leaping aboard.

He sat on a tin of gasoline where he could watch me at the wheel and keep me constantly covered with the gun. "You are a prisoner," he announced, "being held for murder, and I am going to turn you over to the sheriff when I get you to town—if I get you there alive," he finished. "I don't believe in taking any chances with a desperate criminal."

The man must be crazy, I thought. What could he be talking about? Yet he looked far from demented as he sat there, grim and determined.

"What do you mean?" I protested.

"It's no use your playing innocent," he insisted. "You know well enough that you shot and killed your superior and that you stole his papers and nearly all the money, including a marked twenty-dollar bill of mine. Not content with this, you tried to steal our boat and make your getaway, leaving me stranded in this remote district, with only a dead man for company."

That this self-seeking monster had killed Warner I had no doubt. Now he could have me thrown into jail, to await the slow processes of the courts. Meanwhile he would be in possession of Warner's report and whatever knowledge he had surreptitiously obtained and could proceed at his leisure to submit this report, perhaps in an altered form, as his own.

He could even go back to camp and appropriate our marvelous microscope and whatever else pleased his fancy.

ARRIVING at the little pier, he bound my hands with a piece of rope and marched me to the station.

On the way we met two men, one carrying a shotgun. De Morse told them I had murdered a government official sent out to investigate the Zatts and asked to be directed to the sheriff.

One of the men offered to fetch a deputy and the other, the one with the gun, offered to help guard me. Both offers were accepted.

De Morse explained the case briefly to the telegraph operator, who was also the station master. Then, directing the volunteer guard to keep me covered with the shotgun, he drew two slips of paper from his pocket and handed them to the operator.

"Here, get these on the wire at once," he ordered briskly; "they are important. I want them rushed."

The operator took the messages and turned to his instrument.

A train came puffing in and the attention of the spectators deserted us for the moment.

"There must be some misunderstanding about these messages," said the operator, coming back from the ticker. "They are almost identical with two messages I sent for a Mr. Warner not an hour ago. . . . Of course

I can put them through"—noting De Morse's looks—"but I thought I ought to ask you."

At the mention of Warner's name my heart stood still. Could it be he was not really dead?

In spite of the armed man at my side, I crowded closer, for I was very anxious to hear everything the operator was saying.

A wild and startled look had come into De Morse's eyes.

"Was he *here*, this Warner?"

"Just left," declared the agent.

"Board, all aboard"—and the quick choo-choo of the engine announced that the train was pulling out.

De Morse stood for a moment, irresolute.

"Hold them a minute till I investigate," he directed, and turning briskly, he walked out to the train platform. The rear end of the accommodation train was hurrying past.

I stepped to the door in time to see him quicken his pace to a run. With a last ponderous leap he caught the rail of the flying caboose and drew himself up. In one hand he was still clutching my rifle.

The shotgun man thrust himself between me and the train and leveled his weapon at my head with a commanding "Halt!"

At that moment who should come around the corner of the station but Warner himself. He seemed to take in the situation at a glance and came hurrying toward me.

"Hello, old man," he said. "I'm mighty glad to see you're safe. How's he got you tied?" looking at the rope.

"Who are you?" shouted the guard. "He's a prisoner! Stand back!"

Warner took his knife from his pocket, at the same time exchanging a knowing wink with the telegraph operator.

To the shotgun man he said with an amused smile: "Oh, that's all right. No harm done. They were only rehearsing for the movies. That man who just left was Calvin De Morse."

The man lowered his gun and looked about with a silly, sheepish smile.

The bystanders laughed uproariously.

"Bunch of damned idiots!" he exploded in utter disgust as he ejected the shells from his gun and walked away.

Meanwhile Warner had cut my bonds and shaken me warmly by the hand.

"Come on," he said, "let's get away from this mob."

"I never expected to see you alive," I declared as we set off toward the boat. "How did you get here?"

"Well," Warner explained in his matter-of-fact tone, "you know I was suspicious and desperately afraid of that blackguard, and when he borrowed your gun I just felt it was for no good purpose. I guessed he intended to 'get' me and in some way assume credit for discovering the true nature of the Zatts.

"As you were leaving, I had an idea. I picked up a pair of trousers and a sweater and stuffed them full of duds from the grip to make a dummy. A loaf of bread wrapped in the typewriter cover made a head not unlike my own.

"I set the poor fellow at the table, with his back toward the open tent flap, slipped under the back wall and crawled away in the bushes. In the clump of nettles near the spring I stopped to watch.

"I could see De Morse passing in front of the tent. He stopped at a distance of about two rods and without a moment's hesitation fired two shots into the tent. Then he ran over the hill toward the boat. I followed discreetly and saw him threaten you with the gun and get into the boat. As soon as you pulled out, I ran across country to the sawmill that we saw smoking the first day we went collecting. One of the fellows there had a fast boat and I engaged him to bring me down. We passed your boat two hours ago. And here I am."

"Why on earth did you let him get away?" I asked in exasperation. "He is a murderer at heart and a thief besides."

"Well," returned Warner, "I suppose something ought to be done about him, but I didn't want to bother with the mangy cur right now. We've got fish to fry. Big fish."

"There is a watering tank two or three miles this side of the next station and the operator tells me that Old 19 always stops there. I figure De Morse will jump off there in order to escape arrest in the next town."

He looked at his watch.

"It's been fifteen minutes since the train left. I'll bet," he continued with a couple of his humorous snorts, "that old Calvin Learned is running right now, running like a whitehead. I hope he doesn't stop for a week. If we'd had him arrested, we should have to attend preliminary hearings, go God only knows where to attend the trial and waste perhaps weeks entangled in the meshes of legal red tape. And then probably after all he would be acquitted, for he hasn't really killed anybody. We really haven't any time to skin skunks. I would rather think of him splashing across swamps and struggling through mangrove tangles, hiding from the sheriff.

"I doubt if he'll make any further attempts to steal our thunder. When the news of this discovery comes out in the morning papers, mentioning our names, old Calvin Learned will be out of the running, except as he may still be running over the sand hills and across the mud flats."

"Why do you say 'our names'?" I queried. "I am not an entomologist or even a naturalist. What could I know about this business? You don't mean to say you mentioned *me* in your message."

"Quite right. You may not be an entomologist, but you forget that this matter lies entirely outside the province of entomology. As a matter of fact, these Zatts are not insects in any sense of the word. We are dealing with machines and with human beings. It is a mere detail that we have to use the same instruments and devices in their study that we employ in studying entomological specimens."

"You know as much about machinery and human beings as I do, maybe more. Perhaps these little fellows even have souls! I shouldn't wonder if we were awakened in the morning by a troop of Protestant missionaries going to convert the heathen Zatts!"

Then more seriously:

"We must lose no time in getting into communication with them. It ought not to be so very difficult. We must find out where they live, how they live—all about them. I suppose they use the metal which they were formerly supposed to eat to repair their machines."

"Do you think the insect shape of their machines is a matter of camouflage to fool us mortals?" I queried as we approached the boat.

"No," Warner replied thoughtfully. "I think it is a mere matter of expediency. The dragon fly, if we can credit the opinion of Lutz, is the most powerful flyer of the insect world. It was simply a matter of good judgment and perhaps the result of endless experiment.

"We'll get some supplies and go back in the morning," he enthused as we picked up the few belongings in the boat.

"I feel as if we were discovering a brand-new world. It seems probable that these little people are as intelligent as we are. At least they have made more progress in aviation than we have, and it is reasonable to suppose that they are equally progressive in other lines."

"I wonder where they come from and how they live."

"Well, let's buy some chuck and get ready to go."

AT daylight next morning we were on our way and we made a quick trip. But we were doomed to a great disappointment. The Zatts had disappeared.

Although we made a determined search, we could find no indication of where or why they had gone. Only the skeleton remained of the specimen which we had left under a cover-glass on the improvised table. The mechanism was entirely removed. Of the little crew—Zattians we called them—there was no sign.

We surmised that other Zatts had come and carried them away, together with such mechanism from the machine as was easily removable. Perhaps the whole expedition left in such haste that the larger parts of the machine were deemed too bothersome.

There seemed to be nothing for us to do but to pack up and go home. This we did very reluctantly, consoling ourselves with the thought that at least we had the rudiments of a perfectly good specimen of their conveyance, even if the little fellows themselves had eluded us.

Warner again resumed his regular duties, but I busied myself with organizing a company to manufacture the new microscope. By the next spring we had production under way, and I went to Europe in order to arrange for importation of certain special materials which we needed in the factory and to introduce our now perfected instrument in some of the more important laboratories on the Continent.

During my absence the Zatts were very much in the public eye, as I learned from newspapers and private correspondence, and, what was more important, Warner played the leading role in the government's dealing with them. In his letters, however, he said very little about his activities, promising to tell me all about them on my return.

Needless to say I lost no time after landing but hurried to meet him at his new apartment. Government promotion and business interests had made it possible for him to leave the "Beaver" and establish more pretentious quarters at the Glastock.

"You must address me with the reverence due my station now," he said by way of greeting, following it up with one of his characteristic laughs. "I am now Ambassador Extraordinary, with powers plenipotentiary to the King's High Court of Zattington."

"Tell me how did you win your portfolio?" I countered. "We can talk business afterward."

"You should have been here," he declared with enthusiasm. "You would have had the time of your life.

"I guess I may as well start at the beginning; and if I tell too much of what you already know, just complain that you have heard that one and I will pass on." He laughed that whole-hearted, care-free laugh that was so irresistible. But I was growing very impatient to hear his tale.

"You were hardly on your way," he began, "when reports came that great numbers of Zatts were appearing in a certain county in Ohio, and very soon appeals commenced to reach the government, asking for protection against their devastations.

"So far as we could gather, no great damage was being done, although it was evident that the little flyers were appearing in greater numbers than at any previous time.

"The office answered that little harm was to be anticipated and added that a government representative would presently be sent to observe developments and take such measures as seemed advisable.

"Of course they called on me to go, and I was glad enough of the opportunity. However, I was busy putting the finishing touches on an article to be presented before the Society for the Advancement of Science and so put off the trip for a few days. In the meantime I sent an investigator, young Dodge, to see what was going on.

"He reported that the main concentration of forces was in a farming district, not far from a large electric plant. He had found a place on a little hill overlooking a river where the Zatts had literally taken possession of the soil, and though his equipment was not sufficiently accurate to determine for certain, he believed that they were starting miniature building operations.

"He also said they were attacking the high tension power transmission lines and much of the equipment of the electric plant. Also the rural telephone lines, as well as farm machinery and other articles made of metal, were suffering from their depredations, which extended over a large area.

"He also reported that the inhabitants of that part of the state were becoming alarmed and were on the point of taking drastic steps to exterminate the pests.

"Of course any such hostile action was to me entirely unthinkable. It seemed nothing short of murder. I immediately asked to have a U. S. marshal sent to prevent any attack. In the meantime I wired Dodge to go to court if necessary and ask for an injunction against the leaders if they attempted to do anything.

"The marshal went all right, armed with proper authority. But because of governmental red tape, it was three whole days before he started, and that's when the damage was done.

"I wound up my affairs here, packed up a kit of field equipment and went to the front. I got there the same day the marshal did.

"Young Dodge met me at the station with a long face. He said the local judge had refused to grant the restraining order he had asked for, and that very morning a man had gone out with an airplane to drop poison gas on one of the two or three most thickly infested areas.

"I took a taxi and hurried out to the scene, hoping that I might not be too late to prevent wholesale carnage. On the way Dodge told me what had been going on.

"About the time he had arrived, a Mr. Blake had appeared on the scene, a man who claimed to be a scientist of renown and an expert in wholesale pest extermination. He claimed to have freed large areas from such menaces as the yellow fever mosquito and the Mediterranean fruit fly. This man warned the people that the Zatts were multiplying so rapidly that if they were unchecked within a few days they would devour everything, both vegetable and mineral, over an area of perhaps several counties.

"Is this too much detail for you?" he broke off to inquire.

"I should say not," I responded warmly. "Say on."

"WELL then," Warner continued, "this Blake enlisted the aid of the editors of the local papers and of the officers of the electric company and of the rural telephone company. In response to a hurry-up call, came half a dozen organizers from some fund drive promotion company, and under their direction a series of conferences and mass meetings was quickly arranged.

"At these meetings Blake and his speakers poohpoohed the idea that there was anything of an extraordinary nature about the Zatts. They denounced the published statement that they were machines, manned by tiny, manlike creatures as Sunday supplement science, a mere newspaper hoax. To substantiate their claims, they read Professor Zatt's description in the annals of the E. S. A. and distributed copies of it to all who cared to read.

"For a hundred thousand dollars, half to be paid in advance, Blake agreed to destroy the pests, thus rescuing farms, machinery, electric equipment and all from certain destruction.

"The money was forthcoming almost instantly, the electric company being one of the largest contributors.

"In vain Dodge protested that the Zatts used only minute quantities of metal and that they did not devour crops but always carried their food supplies with them. He was denounced as a visionary bug hunter, and when he applied to the court for a restraining order the judge, who when court was not in session was employed as corporation lawyer for the electric company, gave the lawyer a scant hearing.

"So Mr. Blake, in an airplane loaded with poison gas, which he claimed to be of his own manufacture, had set out from the electric plant in the early morning to do his stuff. How he was making out, Dodge didn't know. But we were soon to hear.

"A mile or so from the plant our driver stopped at a filling station for gas and we inquired.

" 'Yes, he went over here about two hours ago,' the attendant said. 'And he is just knocking them cold. There was a swarm of those skeeter fleas around that old copper tank out there yesterday. Now they are all dead. I just opened up now. They warned me to stay away from the place till afternoon. Everybody had to move out, you know, stock and everything, all except chickens. They say the stuff won't kill any kind of poultry. There is a dead dog out there by the road now. I suppose he got away and tried to run home.

"Just then a telephone trouble shooter came in on a motorcycle. 'The flyer is down,' he announced while they were filling his tank. 'And he's dead, too.'

" 'Dead?' I asked incredulously.

" 'Yes,' declared the man. 'Dead as a wedge.'

" 'How come?' I asked.

" 'Well, they don't really know. He was supposed to shut off his poison gas and come to Anderson's station for gasoline at twelve o'clock. The boys at the station saw him coming, but he seemed to be wabbling pretty badly and flying low. All of a sudden he settled down just over in Johnson's cow pasture.

" 'The boys ran over and found the big fellow still in his seat. Seemed like he couldn't get out. There was a big swarm of those Zatts all around.

" 'The man hollered that the Zatts had poisoned him and to fetch a doctor. There was a queer smell like banana oil.

" 'Somebody took the station car and went for Doctor Jump, and the other—Hank I guess it was—got on his bike and went down to the plant for more help. Scared stiff they was, both of 'em.

" 'When Doc got there, the fellow was stone dead. Doc says let him be right where he is and don't any one touch him till the coroner comes.

" 'You can see the plane from the road when you pass Johnson's sugar bush,' he called back as he was getting under way.

"The driver thought he knew where Johnson's sugar bush was, so we hurried on. I wanted to get there before the coroner came, to see first hand what had happened.

"From the road we saw that a little crowd was gathered round the plane. They were held back a little distance by a loose strand of fence wire swung to some temporary stakes. A man with a blue cap by way of uniform was on guard. I imagined he was a deputy sheriff or constable of some sort. So I took my microscope case, which I had brought in the taxi for safety, and did my best to look like a coroner. 'I'll be the coroner till the coroner comes,' I said to Dodge. 'Don't say a word. Come on.'

"We walked straight through the crowd, stepped over the wire and approached the plane.

" 'Bring a box or something for me to put my instruments on,' I said to the guard.

"I climbed up and took a look at the crumpled form inside. And who do you suppose it was?" Warner waited as though to allow me to consider.

"Somebody I know?" I asked unbelievingly.

"Yes, sir," he went on. "It was Calvin Learned De Morse!"

"Never! And he was dead?" I asked.

"Dead enough to suit anybody. It was the first time I had seen or heard of the fellow since he ran away that time.

"Just then the belated government officer arrived, followed at once by the coroner.

"Well, I was busy for a while, I'll tell you. Here was a pretty mess to straighten out. An outrageous attack had been made on the little people, and they had killed a man in self-defense. It was up to me to prevent open and foolish hostilities.

"Investigation showed that De Morse had in some way gotten hold of some gas made experimentally for the War Department and had rented a plane from a flying school in the next county. The gas had been tragically effective. A great many of the Zattians had been overcome by it and some had died before they could be resuscitated by their own relief workers, who were unable to approach the devastated area until a brisk breeze came up to dissipate the poison.

"The coroner reported that 'Blake' had died from inhaling poison gas that bore traces of cyanide, but that was in no way related to the gas he was distributing.

"Young Dodge took me to the place where he thought the Zatts were carrying on building operations, and I saw at once that they were indeed building a city. They seemed to be extracting aluminum from the clay soil and forming it into building material. They were laying out regular streets and erecting little buildings, some of them large enough to be seen without the aid of the glass.

"There could be no doubt that they were establishing a permanent residence. The development covered an area about as large as two ordinary city lots and was literally alive with swarms of the tiny people as we saw as soon as we got out our big microscope and had it set up and adjusted.

"It seemed to me the best thing to do was to make an attempt to get in communication with the midgets and perhaps come to some understanding with them and possibly learn something of their origin and culture. So I hurried back here to Washington to put the proposition up to the department and ask for funds to carry on an extensive series of experiments. I foresaw that we would have a great many obstacles to overcome.

"After a lot of explaining, arguing and downright begging, I succeeded in getting a forty-thousand-dollar appropriation and a promise of more if results seemed to warrant it.

"It was about the most interesting and at the same time the most difficult task I ever encountered. Here I was, trying to find a means of communication with people who could only be seen with a microscope and whose language, for all I knew, might be that of the ants or the bees."

"But what a chance for you!" I interjected.

"YES. Well, at first I hoped that the solution might be through sound magnification. I employed several scientific sound experts and inventors of sound-magnifying devices. But with all our instruments and theories we got nowhere.

"Although I am still convinced that the little chaps are capable of speech, we were unable to hear it. We tried all the latest detecting devices in vain. We were, however, able to hear the operation of some of their machinery quite distinctly.

"I decided to resort to pictures. So I had a signboard erected some thirty feet from the easterly city limits of their new town, which we called Zattington. Then I employed two psychologists who talked a language all their own about sense impressions, mind patterns, the stream of consciousness—a lot of that high-sounding piffle."

"How delighted they'd be to hear you calling it 'piffle,'" I put in.

"Under our direction," went on Warner, disregarding my interruption, "our water-color artist drew the picture of a very large man offering an olive branch to a tiny speck of a man at his feet.

"It was some olive branch, I'll tell you," he explained with one of his amusing little snorts. "My scientifically minded experts insisted that it had to have a blossom on it, so that in case the little people knew nothing of our traditions about olive branches they could at least recognize that it was a good-will offering. My personal opinion is that the artist's experience of olive trees was confined to sunflowers.

"Anyway, it worked. We left it there over Sunday, and when we returned Monday we found a swarm of the lively Zatts flying about the board. The branch had been erased from its original position in the giant's hand and replaced by a much smaller one of the same general appearance in the hand of the pigmy. So we knew our message had been put across and our peace offering had been accepted.

"A week later I had a moving-picture machine and a temporary producing studio on the job. We put up a screen alongside the original billboard and started a series of nightly exhibits. Our plots had to do with showing the Zatts how interested we were in their little world and how we desired to cooperate with them.

"One evening, as we were changing films, one of the fellows noticed a bright spot in a lower corner of the screen, and upon examining it with the short-range binoculars we found that it was a picture, projected somewhere in Zattington, and that it depicted a complete city such as was now under construction."

"Marvelous!" I cried.

"Yes, but listen," Warner returned. "Later, the same evening, they showed a short film depicting their process of extracting aluminum from the clay and shaping it into building material. The next evening they showed pictures which we interpreted as being intended to show how they had journeyed hither from some other planet in space, probably one of the many asteroids. But their methods of interplanetary travel we were unable to understand.

"Well, to make a long story short—I've certainly talked more than my share—we have made an agreement. Did you ever see a real, honest-to-goodness international treaty?"

"Can't say I ever did," I admitted.

"Well, then here's a document that will no doubt interest you."

He rose and, going to his desk, produced a roll that looked like a small map.

"Here," he announced, unrolling the sheet with one of his little explosions of whimsical mirth, "is an international treaty, duly signed and sealed. You, being a layman," he continued condescendingly, "will no doubt need to have the ambassador explain it to you.

"By the terms of this agreement, entered into by Clarence Warner on behalf of the United States of America and by a man whose signature looks like the half curled-up antenna of a grasshopper, on behalf of the duly constituted government of Zattington, certain and sundry matters of economic importance are adjusted."

"How did you arrive at the name 'Zattington'?" I interposed.

"Oh," he explained, "it's just a fancy of mine. If our capital is Washington, why should theirs not be Zattington?

"Now here, for instance, in this series of pictures—which, by the way, are 'stills' from a movie—it is set forth that the U. S. offers to provide certain quantities of such metals as copper, steel, etc., for the Zattites, as we may call them, to use in repairing their aircraft and to cede the town site of Zattington for their perpetual use, in consideration for which the citizens of the said Zattington are to exert themselves diligently to reveal the secret of their mechanical and other useful devices to American engineers and scientists. Furthermore, they are to refrain from molesting metal devices and equipment of any sort not belonging to them, the said Zattites, and to bind themselves to refrain from pre-empting any further lands except with the consent of the Federal Government."

The long series of pictures, separated in little squares like the episodes in the funny picture, were indeed very graphic and I readily agreed that they conveyed the meaning my friend attributed to them.

"And here," Warner continued, "you will see the Zattian version of the pact and the signature of Mr. Curly Antenna."

With the aid of a glass which he handed me I was able to make out a series of minute pictures, arranged in several lines at the bottom of the sheet. They were easily recognizable as the product of the moving-picture artist, and the message they conveyed was acceptably in accord with the one above. The official signature which followed did, indeed, resemble the antenna of some insect.

"How's that for a legal document?" Warner demanded with enthusiasm when I had glanced over the details.

"It appeals to me as the creation of real diplomats," I assured him, and continued: "I am really proud of you, Ambassador."

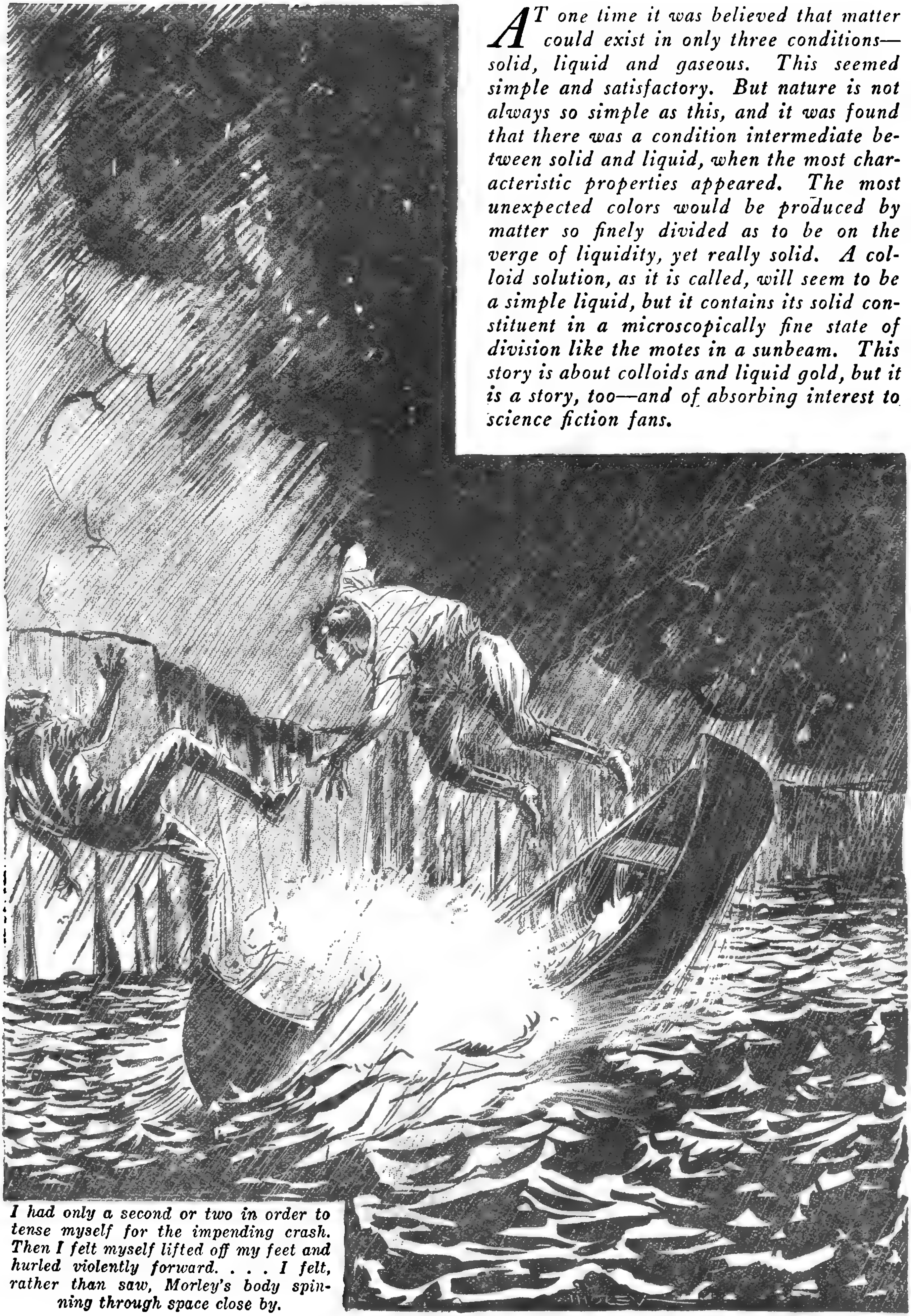
He bowed with superb mock dignity.

"This document would no doubt interest the learned Professor Zatt," I suggested, readjusting my magnifying glass.

"Yes, Zatt's right," was the whimsical rejoinder.

THE END

AT one time it was believed that matter could exist in only three conditions—solid, liquid and gaseous. This seemed simple and satisfactory. But nature is not always so simple as this, and it was found that there was a condition intermediate between solid and liquid, when the most characteristic properties appeared. The most unexpected colors would be produced by matter so finely divided as to be on the verge of liquidity, yet really solid. A colloid solution, as it is called, will seem to be a simple liquid, but it contains its solid constituent in a microscopically fine state of division like the motes in a sunbeam. This story is about colloids and liquid gold, but it is a story, too—and of absorbing interest to science fiction fans.



I had only a second or two in order to tense myself for the impending crash. Then I felt myself lifted off my feet and hurled violently forward. . . . I felt, rather than saw, Morley's body spinning through space close by.

Blue Water

By William Lemkin, Ph.D.

Author of "The Eclipse Special," "Cold Light," etc.

Illustrated by MOREY

CHAPTER I

Deserters

"SO you're throwing up the job, eh?"

The guide grunted in reply. He shifted his weight uneasily from one foot to the other, and nervously rubbed a greasy cap along the seam of a no less greasy trouser. His eyes avoided our gaze. His copper-hued face reflected a crestfallen demeanor. And this was the "noble Indian"—this lugubrious, woebegone creature that scraped and shuffled before us in the doorway of the tent.

I glanced swiftly at Morley, and he returned my glance with a look of unmitigated disgust on his usually placid features. We could see that argument or coercion would be of no avail. Our native guide was adamant. One glimpse of those bronzed features indicated determination, while those furtive dark eyes revealed a suggestion of haunting fear—almost terror.

I realized fully, as did my partner in this venture, the reason for the Indian's sudden defection. This was not the first occurrence of its kind within the past week. Our former guides had left under somewhat similar and equally mysterious circumstances. There was getting to be an almost monotonous regularity about the occurrence.

To keep our man now against his will was sheer folly—that was certain. I paid him what was due for his exceedingly brief services. He mumbled an unintelligible thanks, and with an obsequious bowing and shuffling he backed out of the low doorway. We listened in silence to the rapid patter of his retreating footsteps in the outer darkness, and then Morley turned to me with an expression of puzzlement and chagrin.

"Confound these superstitious devils!" he blurted. He sprang from the cot at the edge of which he had been seated, and paced fiercely up and down the cramped enclosure. "Here we are paying the scoundrels three times as much as they are worth, and they desert us one after the other. I tell you, Duncan, I am determined to see this thing through even if we have to comb every inch of these Nevada mountains by ourselves."

"And, Morley," I retorted sadly, "it looks very much as though that is just exactly what you and I will have to do. As far as the natives are concerned, they may know all about the location of the *Blue Water*, but we cannot expect any help from them, no matter what we pay them. With all their everlasting voodoo and their hoodoo, they are as tight-mouthed as so many clams."

"Now you wouldn't think, would you, Duncan," was my partner's rejoinder, "that such beliefs would exist during this twentieth century in these United States? It is true that the Indian tribes inhabiting the mountains about here are among the most backward to be found anywhere on the American continent—and yet . . . haunted lake . . . mysterious creatures . . . everlasting curse . . . evil luck . . . ha-ha! . . . what bosh!"

"Well, Morley," I ventured, "it's evident that we cannot depend any longer upon guides. Even if they *do* know the exact spot, the natives are scared to death to go any nearer to it. In fact, we're lucky to have gotten this far with their assistance. It's up to us to finish the job on our own hook."

We fell to examining several crudely drawn maps and charts spread out before us under the dim oil lamp. By checking up our progress for the last three days, we calculated our approximate position, and the probable distance yet to be covered before we reached our goal. According to our way of reckoning, we could not be more than fifteen miles from the mysterious lake, and if we kept up our general northwestward trend we ought to locate the body of water, somewhere in those desolate mountain wastes stretching in a tumbled heap before us. Without a guide, and with no adequate knowledge of the terrain, it would obviously necessitate some bit of scouting about, perhaps a good deal of circuitous stumbling—certainly it would involve a number of days of assiduous hunting—maybe weeks—who knows? But the goal was sufficiently alluring to compensate for any discomforts or privations.

We turned in that night, after considerable mapping out and planning, with a fairly good idea of our course of action in the morning.

CHAPTER II

In Quest of Osmium

I LAY awake for a long period, my senses oppressed by the almost palpable silence of the desert around us. My thoughts reverted to the incidents of the last two weeks; and I could not help smiling to myself at the peculiar nature of our quest and at our present situation.

"From osmium to spooks!"

I chuckled to myself at this bizarre transition. Only a scant week ago we two cold and calculating devotees of science and engineering were engaged in the orthodox occupation of investigating ore deposits and the extraction of rare metals from the Nevada hills. Now we were in the midst of as unconventional a quest as could occupy the efforts of two prosaic scientists—a hunt for a mythical lake of certain fabulous attributes. What had turned us from an investigation of nature to what amounted to a research in the field of the supernatural? Now, in my calmer moments of introspection and contemplation, I was almost prepared to admit that we were bound on a wild goose chase. Only the quiet determination of Morley—his deep-rooted zeal for pressing the hunt to its completion—bolstered me in this almost foolhardy adventure.

Arthur Morley was a cracker-jack chemist—not the kind that wastes his time with theoretical twaddle, juggling high sounding formulas and abstruse equations. He was extremely practical in his chemistry, a man who would not be averse to digging down in the muck and mire, getting dirt on his hands and the crease out of his trousers, in order to unearth a chemical truth or clear up a scientific tangle. But don't think that Morley did not have also a firm foundation of theory—that solid basis upon which all practical science must rest for a foundation.

Several months before, Morley had broached to me the subject of osmium ores. Now for years I had been engaged in a small way in the capacity of mining engineer without the advantages of a university training. But I prided myself in knowing the mining and metallurgy of precious ores through the gold and silver areas from Colorado to California and from Mexico to the Yukon. I must confess, however, that I did not know much about osmium. Morley explained it to me. He informed me that this rare metal was associated with platinum, and was considerably more rare. Certain investigations of his, he said, had convinced him that there was a good deal of it to be found in the gold and silver regions of Nevada. In fact, he was certain that by a little bit of careful search we could unearth enough osmium to make it worth our while. And he hinted at a probable use for the rare old metal and its compounds that would create a sizable demand for it. He had been working on the problem for some time, he confided to me, and was sure that he had made a notable discovery in the field. What he needed was some first-hand investigation of the Nevada fields. He took me into his secret, he said, in view of my extensive mining experience in the state. With my knowledge of the lay of the land, and his technical ability, we should make an unbeatable team.

So we started off together in a secondhand car to hunt the elusive osmium in its lair—in the goldfields of central and western Nevada. Our equipment comprised, in addition to the necessary camping and prospecting materials, a rather complete set of scientific apparatus for our—I should say Morley's—investigations. There were the usual chemical reagents and test tubes and flasks, with the customary crucibles and burners of a chemist's workshop. There was also various portable electric equipment, which included a hand-driven generator. Part of the work, Morley explained to me, would consist of metallurgical refinement by electricity, and it would be best for us to be prepared for such operations with even a small-scale apparatus. He even included a standard microscope in his equipment—although what earthly use we would have for this instrument I had no means of guessing. I never cared to question my chemist friend too closely on such matters. Invariably he had his own peculiar ways of doing things, and rarely divulged to anyone the innermost workings of his own mind until the time was ripe for such revelations. Then he left not a single detail for the imagination—everything was hauled on into broad daylight and exhaustively expounded. Hence, outside of a glance that might have denoted but a mild curiosity, I accepted the formidable aggregation of material as a necessary part of our baggage. Provisions were made for storing this traveling scientific laboratory in the rear of our vehicle.

FOR two months we combed the gold and silver mining territory of the state. And we found osmium—that metal rarer than platinum and far more valuable. Morley seemed to have a nose for the ore, because he seemed to be able to locate it in the most uncanny fashion. Sometimes we would camp for as much as a week at a stretch at a certain spot, sampling various specimens of soil, digesting residues from nearby gold and silver workings. At times we were in the heart of civilization—or that straggly collection of habitations which frequently pass for civilization in Nevada. More often we were miles from another living soul, camping among the sagebrush and desolation of the Great American Desert, or amidst the dreary volcanic ashes that remained as relics of distant geologic upheavals.

We found osmium—enough of it to show considerable promise of success for our venture. And we made careful notes of the locations and yields to enable us to work the matter through thoroughly at our leisure. There we made the necessary negotiations to be followed into later with the owners of the various properties upon which we found satisfactory quantities of osmium ores. Of course, our project was a secret from the start. To the outside world we were merely a couple of head-in-the-clouds scientists, delving into some profound problem that concerned the geology of the region, and so we experienced little if any molestation in our business.

There was a good deal of Morley's work on the metal which I did not understand. I doubt if he had a perfectly clear idea about it himself. From the explanation that he did give me, I gathered that he was aiming to convert the osmium which we extracted here and there in our workings into a certain salt or compound of unusual combination.

"Now you see, Duncan," he expounded to me one evening in our encampment, "osmium is one of those elements which are classified in Group VIII of the Periodic Table."

I blinked knowingly, and kicked myself mentally for having missed out on a university training in chemistry.

"Osmium has a series of valences," continued my chemist friend, "the highest of which being *eight.* In other words, osmium may, under certain circumstances, form compounds such as OsO_4, osmium oxide, and $Os(NO_3)_8$, osmium nitrate, and others of a similar character. Now my idea, Duncan, is to convert the metal into a salt in which the valence or combining power of the element is increased in multiples of eight to an almost unlimited degree. So that, in solution, the metallic ion will have, not *eight* positive electric charges, but *sixteen, twenty-four* and *beyond.* I've got only as far as the *sixteen* stage, but I have hopes of developing the series very much farther than that, and when I do, I'll show you what an important element osmium will become in the field of electrical metallurgy."

To be absolutely frank, I was very poorly prepared to understand the full significance of this work on the higher valences of osmium. All I knew at the time was that Morley had made a vastly important discovery in the chemistry and technology of this rare metal. Whatever it might be, I was prepared to place heavy odds on an ultimately practicable contribution to the field, as a result of my friend's effort.

I might add here, in a parenthetical fashion, that Morley little dreamed at that time of the unusual twist in our fortunes that would result from this work on "super-valence," as he so aptly termed it. And you may rest assured that I dreamed of it much less. Even at the very moment of the great catastrophe, when the whole sinister significance of "super-valence" loomed upon us as one vast power of destruction, I was unable to grasp the full import of the matter. Morley, even with his almost supernatural power of absorbing the meaning of a situation in one lightning-like flash, was nevertheless just a trifle too late to avert the final disaster.

But perhaps I am not playing fair by bringing in such irrelevant material at this point in my narrative. It is extremely difficult to maintain a logical sequence, influenced as I am by the dramatic and totally unexpected outcome of this whole adventure. If I am guilty of any similar lapses as I unfold the story, I ask your kind indulgence.

We worked along for weeks on the slow and painful task of collecting osmium. All samples that we gathered were refined on the spot and the metal extracted with the aid of our portable metallurgical equipment. By a series of chemical manipulations, the nature of which was, to me, shrouded in mystery, Morley converted the precious metal into his queer salt with the high valence. He called the compound *osmium supernitrate.* It was a grayish white crystalline powder possessing a certain unique iridescent lustre like the surface of mother-of-pearl. The chemical was certainly unlike anything I had ever seen before. Morley kept it carefully stored away in a quartz container, which was in turn protected from breakage during our traveling about by a thick outer wrapping of felt.

As our work progressed, the quantity of salt increased. After two months of diligent work, during which we covered the entire central portion of the state and a good deal of the western part, we had accumulated perhaps two pounds of the osmium supernitrate. Morley voted that we had enough for the present. I could do no more than agree with him. Our location at the time was in the Smoke Creek Desert, just north of the Pyramid Lake Indian Reservation, and not far from the California line. Being less than a hundred miles from Reno, we decided to head back to that point with the results of our search, and there Morley promised to open my eyes to the vast possibilities inherent in our new osmium compound.

Then, on the very day that we were making ready to pull up stakes for our return trip to civilization, we heard about the *Blue Water.*

CHAPTER III

An Indian Legend

A COUPLE of nondescript Indians from a neighboring village, their curiosity aroused by our work, had wandered over to our diggings astride an equally nondescript plug. They hung around and watched our doings in discreet silence. Presently they became talkative in a guarded sort of way, inquiring curiously about our work. They could, even with their limited range of understanding, perceive that we were engaged in some scientific exploit that was not related to ordinary gold and silver prospecting or mining.

Then one of them dropped a gutteral remark about the *Blue Water* lying off yonder . . . with a vague sweep of his hand to the north. We paid scant attention at first, because we were busily occupied with the finishing touches of our work, preparatory to breaking camp on the following morning for the trip back to Reno. He thought that, as men of science, we ought to be interested in this matter, and he did not hesitate to say so. My indifference melted as I heard more of the *Blue Water.* The Indian's evident earnestness was a certain indication that there was something more than idle fancy in his tale.

"Where is this *Blue Water* that you talk about?" I queried sharply, eyeing the native with a penetrating glance.

Way up yonder—Buffalo Meadows—the other side of the Granite Mountains—Black Rock Desert—way up there—and our informer's arm made another majestic but decidedly vague sweep in a general northward direction.

"How far is it from here?" Morley inquired.

Oh, perhaps twenty—thirty—five hundred miles, maybe a thousand—who can tell?

The Indian's conception of distances was refreshing, if nothing else.

"The devil take these morons!" muttered my companion. I was inclined to agree with him on the matter. "What in the name of common sense is this tommy-rot they're to put over on us anyhow?" he added with a burst of impatience. "Come, come, Duncan, we've got no time to waste on these simpletons and their senseless drivel."

The natives, nothing abashed by this display of petulance, continued to loiter around us. The second Indian, who up to this time had vouchsafed no data on the subject of the *Blue Water,* now entered the lists with some pertinent information of his own.

Surrounded by mountains as straight as a pine tree and as high as the heavens—and the water just as blue as the sky—no—as blue as a sapphire—deep blue—that was the lake of the *Blue Water.* And a demon of great evil power lived there—he was the king and ruler of the *Blue Water*—misfortune and pain, even death upon any who even dared to approach it. Our second informer was uncommonly positive in regard to the dire consequences of intruding upon the domain of the *Blue Water* spirit. But the white scientists would have no fear—the evil influence extended only to the natives—at least, so our informer believed. Yet—with a shrug of his shoulder—who knows, the ruler of the *Blue Water* may be very fickle—who can tell what his feelings are in the matter.

That this bizarre tale was to us exasperating beyond description is putting the case too mildly. Morley's prompt reaction was to brand it a pretty cock-and-bull story—one of the finest examples of lurid superstition that could be found among the ignorant aborigines of this God-forsaken desert country. I did not doubt in the least that the tale of the *Blue Water* was a fantastic myth, a product of some distorted imagination here among the backward Nevada redskins. It seemed queer to run across such legendary rubbish in this age of progress and enlightenment.

But I was frank to admit that my curiosity was aroused. The more so was it, when, later in the afternoon, another casual visitor from the Indian village repeated the yarn of the *Blue Water,* differing in essence only very slightly from the original account. He embellished it somewhat, after his own peculiar fashion, with details of the magical nature of the lake, the boding evil that surrounded it.

That evening, which we had intended to be our last in this desert region, Morley and I discussed the unusual tale of the Indians, and its possible significance. Methodical, scientific and calculating though he was, my chemist friend was not totally devoid of that certain spark of romance which is so exceedingly rare in a scientist. And, as for myself, I had been knocking about through more degrees of latitude and longitude than I could readily enumerate, and the scent of adventure was sweet fragrance to my restless soul.

"Darned if I can make it all out!" mused Morley as he pulled thoughtfully at his pipe. "A mysterious blue lake, up in the north, with some demoniac influence or being that resides there. What do you gather from it all, Duncan?"

"Well, Morley," I returned, "it sounds like a pretty fairy tale—and yet—I don't know—there's something about it that makes me think it might stand a little investigating—even by a couple of scientists."

We fell to discussing the matter of the "*Blue Water*" from all angles. The upshot was that Morley left the tent, started up our ancient chariot and clattered off into the darkness in the direction of the Indian village. The only way, it appeared, was to run the story down to earth. Somewhere in that miserable aggregation of squalid humanity there ought to be someone, perhaps some few, who could shed a little more light on the fantastic mystery. I remained behind, and busied myself with the task of gathering together and packing our equipment and general effects. With our osmium hunt now finished, at least as far as the first stage was concerned, we ought to be preparing to get back to the world—and yet, there was this puzzling matter of the *Blue Water*. . . .

CHAPTER IV

A Marvelous Lake

IT was close to midnight when my partner returned from his quest. He had news, and he wasted no time in telling it.

"It took a good deal of scouting around and questioning," he began, throwing himself upon a cot and filling his pipe deliberately, "before I could unearth anything tangible. Those fellows who came out here this afternoon were garrulous to the very limit, in comparison with their worthy brethren back in the village tonight. A good number of them didn't know a blessed thing, and showed it plainly. A few whom I questioned were familiar with the story of the *Blue Water*, but when I tried to draw anything from them, they shut up in a manner closely resembling a clam suffering from lockjaw. I finally located several stalwart braves who were willing, for a consideration, to tell me what they knew about the *Blue Water*. There were numerous inconsistencies and contradictions. A good many of the facts—if facts they are—I found to be varnished over with a glamour of mythology and pure hokum. Most of my informers were very guarded in their speech, as though they feared some great evil would befall them, if they divulged any important information. Fortunately, there were two or three, in addition to those fellows of this afternoon, who were not averse to going into detail. From all the shreds and morsels that I garnered tonight, here is the entire story as well as I can patch it together:

"The *Blue Water*, named so by the Indians, is a small lake situated, as near as I could learn from the meagre information, about ninety miles northwest of here. It lies in one of the most desolate districts of Nevada, in the centre of a mountain range and surrounded on all sides by towering peaks that wall it in completely. The water, as that fellow told us earlier in the day, is a rich blue, which is, by all odds, the most outstanding point of the whole story. My informers tonight might have differed among themselves in some of the other details, but as far as that one matter was concerned, they were in complete accord—the lake is a genuine sapphire blue. And therein lies the magical association—and the hokum, too. A vicious demon of some sort is supposed to reside in this lake—a blue monster of grotesque proportions, that rules this body of water and the surrounding territory. This fantastic creature exercises an evil influence over everything in the vicinity—the lake—the mountains—the desert—even the sky above. It brings storms and destruction upon any who dare to invade its mystic domain. Evil and misfortune have been known to befall those who have had the temerity to approach even within twenty miles of the *Blue Water*. None of those whom I questioned admitted ever having seen the lake or the monster that reigned over it, nor could they say that they knew anyone who had. Moreover, not one of these intrepid story-tellers could say that he had either experienced or witnessed any of those evils and misfortunes that were said to be visited upon any who dared to approach the vicinity of the lake. A delightful legend, isn't it, Duncan? And yet, what sincerity! what firmness! what conviction! They *knew* the entire story to be irrefutable truth—and they stood by their beliefs in the face of any argument to the contrary."

"Well, Morley," I remarked, "that story may all be very well, but it sounds like a fairy tale to me, like some old squaw legend that probably dates back to prehistoric time. Blue monster—storms and hard luck—ha! . . . A chapter from Grimm!"

"Not so fast, Duncan," retorted Morley. "There's something also that I haven't told you yet—a detail upon which there is complete agreement in the six or eight different stories that I heard tonight. *There's gold in that lake!! Liquid gold!*"

"Liquid gold?" I echoed, in astonishment.

"Yes, liquid gold!" Morley repeated firmly. "Now that sounds queer, doesn't it, Duncan—and coming from an alleged scientist, too! Those fellows told me, to the last one of them about gold—a strange kind of gold—they call it *blue liquid gold*. It's in the lake, they say, and is guarded by the grisly blue monster. Of course, there is a good deal of the entire story of the *Blue Water* that we, as scientists, have to discount. But this *blue liquid gold* idea strikes a certain respondent chord in me. I've heard of it before—seen it before, but always as a laboratory curiosity—never in nature. I tell you, Duncan, that one point alone gave me more food for thought than all the rest of the tale about the evil demon and his sinister influence over this unique lake. Making allowance for all the legendary bunk that has grown up about the thing, I can still see that there might be a modicum of genuine fact underlying this whole huge fantasy. Now I have a certain theory about this *Blue Water* that grew upon me on my way home from the village tonight. This notion of *blue liquid gold* got me to do a little thinking. And now I've got half a notion to go up there and find that lake. And I've got more than half a notion that my theory will pan out correctly. And if it does . . . well, Duncan, there will be something more than osmium to reward us for our months of work together!"

At first I was tremendously astonished at Morley's queer turn of mind. He certainly was the last person on earth whom I ever expected to fall for so fantastic an Indian legend. But then there was the strange twist at the end of the tale—that mysterious, quasi-scientific aspect of the thing that appeared to throw a new light on this whole extraordinary affair.

All Morley would say was that he was on the track of some startling natural phenomenon. Would I be willing to join him on an expedition to find the *Blue Water* and the liquid gold? Very well . . . did I think that we could break camp tomorrow at dawn? Excellent!—then we were to abandon our projected return to Reno and start north in the morning to hunt for the strange lake!

When I questioned Morley about the nature of his theory regarding the "liquid gold" he merely smiled. "It's only a theory," he said, knowingly, "but I'm pretty confident that there's something in it. And I don't think, Duncan, that you'll mind waiting for an explanation, will you?" which was the very last word that he would drop on the matter. He plunged with a consuming vigor into the preparations for tomorrow's start and all his talk was now about roads, directions, plans. He was in a veritable fury of excitement to be off and away on the new quest.

The precipitous enthusiasm of my friend all but swept me off my feet. I was startled to see this erstwhile staid and prosaic manipulator of test-tubes and chemicals suddenly wax fiery in connection with so incredible a tale. Yet, I had a boundless faith in Duncan's fundamental common sense. His work on the osmium ores during the past few months had demonstrated that to me beyond equivocation. He had not taken me much into his confidence at the start of our osmium adventure, choosing to mull over and piece out his hypotheses pretty much to himself. I had not molested him, knowing very well that, when the time came, he would divulge all to me. And so we had worked together over our unusual mining project, and little by little I had learned the way and the wherefore of the whole thing—at least as far as the metallurgy of osmium was concerned. I was yet in the dark as to the ultimate uses of his synthetic compound, but I was certain that that secret would soon be revealed too.

CHAPTER V

The Start

EARLY the following morning, even before the first rays of the rising sun shot over the low sombre hills to the east, we had our equipment packed in the car and were off. Of course, it was useless to attempt a search for the *Blue Water* on the meagre information that Morley had obtained the night before. We might wander in aimless circles for days or weeks without getting anywhere. It was evident that we should have to engage the services of a guide to help us across the unfamiliar desert and mountain terrain to the north. Accordingly, our first stop of the morning was at the near-by Indian settlement. There Morley routed out the individuals who had supplied him with the information concerning the lake. A motley aggregation they presented indeed! When we broached the subject of a guide, there was a painful silence. Then one of them blurted out that it would be as much as his skin was worth for any of them to trespass on the sacred domain of the blue demon, or even think remotely of approaching it. Again that execrable superstition of theirs!

However, when we got down to concrete facts, figures and emoluments, one of them so far relinquished his ancestral beliefs as to offer his services—for part of the way at least. This fellow asserted, rather hesitatingly, that he was familiar with the territory to the north; he had often been through that country, well up toward the neighborhood of the mystic lake. He said further that, once we reached within twenty miles or so of the *Blue Water,* we would come upon other scattered Indian habitations, and there we might be able to engage the services of another guide to show us over the rest of the way. Perhaps, he guessed, some of those dwellers would be more willing to risk the wrath of the evil monster. It was obviously impossible for us to try to reason with the Indian. We considered ourselves fortunate in being able to get any help even for part of the way. Perhaps, we conjectured, it might not be so difficult to find some one to guide us, or at least give us the necessary directions, once we came within striking distance of our goal. The Indian was therefore promptly hired, at a figure that would make him financially independent for the remainder of his natural life, judging from his mangy aspect, and the fearful squalor of the entire native community.

The first thing that our guide did, in his official capacity, was to offer the respectful suggestion that we should have to look for more suitable methods of conveyance than our trusty motor vehicle. He reminded us that a good deal of the trip would lie through a region where no road penetrated, none at least, that could be safely negotiated by an automobile. There were, he averred, certain more or less well-defined trails leading up into the territory, but these petered out long before one could get anywhere near the *Blue Water,* and the rest of the journey we would find to be through an almost pathless region of mountain desolation. He mentioned horses, and we readily fell in with his suggestion.

Four animals were procured from a more prosperous member of the Indian commonwealth—one for each of us, including the guide, and the remaining beast to haul our necessary equipment. This required our dismantling the baggage, assorting it to weed out the non-essentials, and repacking the needed material on the back of the fourth horse. Camping and cooking material, food, necessities of clothing constituted one part of the load. Just as important, in Morley's estimation—and he did not hesitate to mention and emphasize it—was his miniature chemical laboratory, even including the pieces of electrical equipment, which he had found so indispensable in the refining of osmium ore. Morley said that he would need all of this apparatus when we reached our destination and started to explore the scientific possibilities of the fantastic lake. And to be sure, there was that precious container of *osmium supernitrate.* He certainly was not going to leave that behind with the superfluous material that we packed away in the car and left to the watchful eye of our horse merchant against our return at some future date. No—those precious two pounds of synthetic salt meant too much to Morley—if not to me, to be left. It would not add very much material to the burden, and it was much safer with us. So along it went.

As I look back now at the entire episode of the *Blue Water* I stop and ask myself these questions: Would matters really have taken a different turn if we had not brought along with us this jar of osmium compound? Could not the great catastrophe have occurred even without the presence of this unique chemical? Might there not have been present in or near the *Blue Water* some salt or other compound which would have exercised a similar influence? Would we have met with final success in our adventure if—? But wait!—I'm getting ahead of my story. The matter of the *osmium supernitrate* will come in due course. Meantime, it resided securely in its container, well padded on all sides against breakage, and safely ensconced in the pack of scientific equipment cinched to the horse's back.

It was nearly noon before these arrangements were completed, and we jogged off northward. Owing to the irregular nature of the land, our progress was slow. The road, or more correctly the *path,* left the ragged valley in which the Indian village was huddled, and struck off sharply over the first low range and into a region of irregularly strewn rocks, sand, and the inevitable stunted sagebrush. We worked our way down the steep side of a gully through which a sickly alkali stream trickled and up the opposite side, through an entanglement of boulders and desert débris. The going was extremely difficult. In comparison, our laborious motor journey up and down the state in search of osmium ore had been one grand majestic sweep over a magnificent concrete boulevard. We covered no more than fifteen miles in all before the desert sunset came, with that suddenness, swiftness and chill, which were so familiar to us. Our stopping point for the night was in a narrow declivity sheltered between two towering boulders.

It was the following day that the strange train of evil and misfortunes began. But really—that sounds like the same sort of language we heard from the Indians back in the village from which we started. Evil? Misfortunes? Why no! Morley and I readily agreed between ourselves that they were merely those unavoidable bits of luck that might befall anybody—anywhere. Since we prided ourselves in being matter-of-fact scientists and men of the world, to say that there was anything supernatural or demoniacal about these incidents, was to lay ourselves open to severe criticism. But it was hard convincing our guide—I should say *guides*—because we had the same unearthly trouble with the whole string of them, only it got increasingly worse as we drew nearer our goal. But again I'm getting ahead of my narrative.

CHAPTER VI

An Avalanche

WE were off to an early start the next morning, determined to make as much speed as the increasingly rough terrain would permit. Our way led over a narrow rocky trail that crawled tortuously up the sheer face of a sombre cliff. Our progress was slow and halting. Every step had to be chosen with consummate caution. The trail being merely a narrow, ill-defined line winding its way upward, our party was in single file, the Indian guide in the van, Morley second, our pack horse walking along behind him, and I bringing up the rear.

Presently we came to one particularly narrow portion of the trail where there was barely room for a horse to traverse. A huge boulder, balancing precariously on an uncertain foundation, jutted out across our path from the left. On the right the cliff fell away almost perpendicularly to a rock-strewn ravine below.

As the guide squeezed past the obstruction, his horse stumbled on the uneven surface of the ground, and almost pitched his rider headlong into the ravine. But the Indian was no novice in horsemanship. He retained his seat in the saddle almost miraculously, and, reining the animal sharply, he brought him up on the other side of the boulder, none the worse for the narrow squeak.

But that was merely the beginning of things.

Just as the guide pulled up and wheeled about in the narrow trail ahead, Morley started forward to make the hazardous crossing of the spot just negotiated by the Indian. I suddenly looked up. From my position in the rear of the cavalcade I was able to command a wider angle of vision than either my comrade or the guide. I could see what was coming.

"Hold on! . . . Morley! . . . wait! . . . stop!" I shouted hoarsely. The chemist looked up inquiringly.

"For God's sake!" I exploded. "Don't budge! . . . not an inch! . . . watch out! . . . a landslide! . . ."

Morley jerked back his mount's head viciously, almost setting the animal on its haunches. The Indian's stumbling passage had dislodged a few pebbles at the base of the boulder. These went skipping down the declivity, followed immediately by others. Loosened rocks from the side of the cliff at our left came tumbling along and shot over the edge of the trail with an ominous grinding noise. And then it appeared to my startled eyes as though the entire side of the cliff was giving way. Jagged chunks of stone, immense masses of lava, mountains of sand and débris rolled and slid and tumbled from nearly over our heads, while clouds of choking dust almost enveloped us. In the midst of the awful sweep of destruction, the gigantic boulder that had up to now lain directly in our path was loosened from its moorings. It rolled over slowly with a sickening crunch, and then in one fearful leap it was over the edge, and thundering down the valley amid a smashing phalanx of lesser rocks and loose dirt. Then followed other huge fragments shaken from their positions above, until there was a rain of devastation hurtling down the mountain side with a crash and a roar that were nothing short of terrifying.

Throughout this entire, hair-raising episode, our party remained as though glued to the spot, our guide looking back at us through and across this awful convulsion of nature with abject horror written all over his features—we in the rear hugging the sheer wall at our left and crouching under the scant protection of the beetling cliff. Speechless with astonishment, Morley and I huddled against the almost vertical wall. Even our three horses trembled with the terror of the situation.

To my overstrained nerves it seemed that the mountain side rained rocks and dirt for hours. But the entire incident, from the moment that our guide's horse had stumbled until the last pebble came clattering down from above, could not have taken more than two minutes. A dead silence now replaced the frightful crash and roar of the landslide. We promptly found our voices.

"Lord!" ejaculated Morley, his features blanched, his entire frame shaking as with a palsy. "What a close one that was!"

"I hate to think," was my terse comment, barely above a whisper, "what might have happened to us!"

We stood surveying the dismal scene in awe and bewilderment. Our path ahead of us was completely annihilated—just smeared off the surface of the hill by the plunging storm of destruction. Facing us was a vast heap of rocks, lava and mountain débris, piled up to a width of twenty or thirty feet. Just over the top of the mound and on the other side of the path of ruin, we could make out the figure of our guide.

For the space of several minutes we were able to do nothing but stare stupidly at the wreckage before us. Then a glance between us was sufficient to communicate the plan of action. Dismounting, we led our three horses up the steep mound of rocks and sand toward our isolated guide. Scrambling, slipping, sliding, we picked our way over the treacherous moraine which had been deposited across our path. It required some cautious guiding on our part, and some gingerly stepping on the part of the animals to navigate this heap that the avalanche had spewed down the hillside. Safely on the other side, we halted to discuss the situation.

"I wonder if there's much more of that sort of stuff in store for us," I remarked, as I viewed the devastation from our new position.

"This part of the country appears to be noted for such playful pranks of nature," was Morley's dry comment. "I guess you can always expect a slide like that in a rocky, hilly, topsy-turvy region like this, devoid as it is of trees or vegetation of any sort to hold the ground together."

The guide, who had up to this moment maintained an ominous silence, deigned to break it with a flood of language that I was expecting at any moment. This was the sinister work of the demon in the *Blue Water*.

This supernatural being knew of our coming, he was aware of our purpose. He was now dispatching his preliminary warnings. The rock slide was purely and simply a manifestation of his supreme control of the region. And it was just a foreboding—this near-fatal occurrence . . . just a sign that said to us: "Beware!" Divining our intentions of breaking in on his sacred domain, the spirit of the *Blue Water* was merely giving us a taste of what we might expect if we dared to continue in our quest for the mystic lake.

All of this and more the poor, benighted native poured forth—his volubility was inundating—his abject fear was appalling—his quakings and shudderings were pitiful to see. He was not going to risk his neck any further on this fool escapade. He wanted what was coming to him for his services up to date, and then we might feel at liberty to continue as best we could by ourselves. He would be happy to give us the necessary verbal direction as to how to find the *Blue Water.* Perhaps we could locate it without his help. Perhaps we might come across some stray inhabitant of this lonely region who would be willing to guide us the rest of the way. But as for himself, by all that was sacred and holy to him, he dared not budge another inch in the direction of the charmed lake.

We reasoned, argued, cajoled—to no avail. The redskin was obdurate. Then we mentioned money. Would double pay appeal to him? A momentary hesitation on his part revealed his vulnerable spot. We pounded away at it. Under the force of our attack, his strong superstitious prejudice slowly dissolved. It was refreshing to see the change of heart slowly growing and developing in our rascal of a guide. I was half tempted to believe that his profound dread at the recent avalanche was a clever bit of acting—his cringing fear of the hypothetical monster in the mythical lake and of the alleged malevolent doings of the demon were nothing more than a sham. Yet there was something about the Indian's psychological and physical reaction to the rock slide, which hinted that it might have been genuine. Be that as it may, friend guide was won back into the ranks with promise of twice the remuneration which we had bargained for at the start. This thought I, should now enable the crafty swindler to spend the balance of his days in sumptuous luxury.

Following a check-up of our equipment to see that nothing had been lost, damaged or dislodged during the perilous trip across the obstructing mass, we continued north along the same rock trail that clung to the face of the cliff.

Nothing more of an eventful nature marred the day's progress. At best, it was a halting progress, getting more difficult every hour. Frequent detours around obstacles that could not be surmounted served to increase the total distance covered, without adding materially to the effective mileage in the actual direction of our goal. Sometimes the ground suddenly fell away, and we discovered ourselves on the very rim of a yawning chasm. This, of necessity, entailed a laborious circumnavigation. We had to retrace our steps for a considerable distance so as to find some practicable path, and so, of course, much time was consumed, and we got ourselves needlessly fatigued into the bargain.

The end of the day found us about thirty miles from our starting point at the Indian village. We camped for the second night on a sort of plateau under as brilliant a starry sky as was ever my fortune to observe. Off in the distance a little west of north I could make out in the starlight the shadowy outlines of the mountain range toward which we were heading. Sombre peaks thrust themselves up from the inky mass, silhouetted against the spangled firmament, and edged with a picturesque halo or corona of soft light. Somewhere amidst that group of peaks nestled the *Blue Water*—at least so the guide's statement ran—and so we hoped. Even prosaic I was beginning to fall a prey to the romantic aura that surrounded the lake and its mysterious associations.

CHAPTER VII

The Blue Demon—and Another Desertion

At daybreak our little party was on its way again, pressing on with relentless energy. At least Morley and I exhibited most of the energy. The horses, either because of the hard going which was their lot, or for reasons arising from their life-long association with the indolence of the natives, showed very little inclination to hurry. Our guide manifested practically none. Presumably the poor fellow's misgivings of the previous day had been but temporarily submerged by the prospect of handsome rewards if he stuck it out with us. His apprehensions bloomed anew—fears of some nebulous pall of evil hanging over us and our quest. But evidently the constant thought of the princely earnings, that were to be his when it was all over, was sufficient to rout any chance disposition to wobble in his duty toward us.

No untoward circumstances developed on the third day. The uneven, uncharted stretch of territory precluded any but the most watchful and most hesitating advance. At times we descended into ragged declivities, where we stumbled along more or less blindly. At others we came out upon slight elevations from which we could make out the far-off outlines of the mountain range toward which we were aiming. Frequently the guide lost his bearings, which occasioned a good deal of circuitous meandering before we picked up the trail once more. What with many stops and much aimless hunting, the total actual distance covered in the direction of our goal was no more than fifteen miles.

The events of that night might be regarded as just the second phase in the development of that chain of evil and misfortune upon which the Indians had expatiated before our start. At least, the guide was firmly convinced about that point, and his subsequent behavior indicated as much. But once again I'm rushing ahead of my narrative. Let me take up the events in their order, and you can draw your own conclusion.

We pitched our tent for the night on a barren slope that curved down to a dried-out pond or small lake. It must have been well after midnight when I was awakened by a sullen oppressiveness in the air. The day had been a warm one, but on this vast mile-high desert plateau, the nights were always known to be cool—at times uncomfortably cold, even in the summer season. The brooding tension in the atmosphere now seemed to bode some unknown evil. As I sat up, still and rigid, the solemn hush seemed to press down upon me like a ponderous weight. The blackness all about me was intense.

Suddenly a blinding flash came through the open doorway. It illuminated the interior of the tent and revealed the transfixed figure of the guide sitting up among his blankets on the ground, a look of wildest terror in his eyes. Morley too had awakened and was beginning to stir. Then a resounding crash of thunder shook the very earth beneath us. We tumbled out hurriedly, the Indian quaking with fear, and set about to see that things were fast in the face of the approaching storm. I had experienced many such more or less violent atmospheric disturbances, and I had no particular dread of this one. Fierce bursts of lightning lit up everything within and without our crude shelter as bright as day. Peal after peal of thunder rolled and tumbled from above, as if the heavens were about to be torn asunder and piled about our ears. Then a drenching rain came beating down furiously.

The three of us hastened out in the storm to make certain that everything of ours was in proper shape to weather the clash of the elements. Morley turned his attention to the tent-moorings, while the guide and I ran to make certain that the horses were properly tethered. At least I ran, while the terrified native lagged weakly behind. Suddenly at an unusually brilliant flash of lightning, he stopped in his tracks, and let out an unearthly shriek. Then he wheeled and dashed through the blinding sheets of rain in the direction of the tent. Cursing the wretch inwardly, I secured the horses' fastening and beat my way against the furious downpour back to shelter. I found Morley barely able to restrain the poor fellow. We feared he was going mad.

The blue demon! . . . He had seen it, he said . . . there among the horses . . . when the vivid flash of lightning had illuminated the whole earth! . . . Yes! . . . he had seen the ruler of the *Blue Water* sitting astride one of the horses . . . hideous . . . leering at him . . . pointing an accusing finger at him . . . delivering an unmistakable gesture of warning to him! . . . And the storm—the violent outburst of the elements was another visitation and a signal to beware! Such was the guide's story—accompanied by rolling of eyes and chattering of teeth and quaking of his entire frame as the furious disturbance ripped and tore about us.

Of course we laughed at the entire matter. I assured the guide that I myself had carefully examined each animal and its tethering and I could testify earnestly that there was no such grotesque being anywhere about —no living thing except our four horses. He refused to be convinced and continued his abject lamentations and warnings of the approach of some fearful calamity.

But nothing serious happened. The storm—an unusually severe one for this locality, I thought—raged with relentless violence until just before dawn. However, we managed to stay tolerably dry under our slim shelter, although some of our luggage received a thorough soaking. There was no more sleep for any of us for the balance of the night. We sat up and conversed in hushed whispers—that is, Morley and I did—the frightened Indian crouched huddled in a corner, muttering to himself, and casting wild glances in all directions at each brilliant flash of lightning and each roar of a thunderclap.

In the gray of the morning the storm subsided. But fortune continued against us. The Indian refused to go another step in the direction of the *Blue Water*. He had had enough—too much! First the landslide that had come so near to destroying the entire party—second the horrible storm of the night, the most ferocious he had ever experienced—and last, and most terrifying of all, the ghostly creature mounted on the horse during the height of the storm—the lord of the *Blue Water* commanding him to go back!

Silly though the whole matter was, there was no budging him. Even promises of fabulous wages did not avail. The lure of reward no longer exercised any power over him in the face of such awful premonitions and warnings. As for the *Blue Water*—if we still persisted in our hunt for the evil spot, despite the due and ample notice to beware, then that was our own lookout. He could give us the general directions to follow—he could even instruct us as to locating a near-by Indian habitation, where we might succeed in getting somebody else to guide us. But as for himself, he was through.

There was no holding the fellow after his wild vision during the storm. So we settled our account with him, made a note of whatever slim directions he could give us to help in finding the native habitation, and released him from his obligations. He tied together his few belongings, slung the pack over his shoulders, and started out on foot back to his people. The alacrity with which he disappeared over the little rise of ground to the south of our camping spot spoke volumes for the superstitious dread that gripped the wretch's heart.

CHAPTER VIII

Misfortune Upon Misfortune

THE next few days we experienced in the main very much the same variety of drawbacks, hindrances and discouragements that characterized our first three days in search of the *Blue Water*. Generally, in such desert regions, even a heavy fall of rain is quickly absorbed by the parched ground. A few hours after the storm, there is usually not a trace of water visible anywhere about. But the violent deluge of that third night was not so easily soaked up. As a result, travel on the following day was all but impossible. I think that the total progress in the actual direction of our goal amounted to about five miles. Late in the afternoon, after much splashing and floundering and groping aimlessly about the region we came upon the miserable cluster of Indian huts to which our erstwhile guide had directed us. Getting a new one here was just as difficult as we had found it before. Those primitive creatures knew as much about the sinister fantasy associated with the *Blue Water* as their brethren in the first village. However, the promise of (to them) fabulous rewards again recruited for us a deserter from the ranks of superstition and hobgoblinry.

The morning of the fifth day found us just entering the mountain region, and about thirty-five miles from the purported location of the lake of blue. Before the day was two hours old, we found ourselves hopelessly lost in a labyrinth of gorges and almost impassable ravines. Our new escort was obviously a poor hand at guiding. We found our way out of the tangle, at last, more as a result of our own sense of direction than because of any innate skill on the part of our native cicerone. No sooner were we on our way again, than another matter came to our attention. Our water supply, always a matter of very close concern to us, suddenly loomed up as a very serious item. About noonday we discovered, on trying the water in our canteens, that the sun had spoiled it. It was so brackish that we could not touch a drop. Most of the afternoon was therefore consumed in searching for a spring or rivulet of fresh water. At first glance, this should not have been such a prodigious task, because of yesterday's heavy downpour. But sufficient time had elapsed for all that water to disappear completely—nothing remained but the parched and uninviting rock and sand surface.

Dying of thirst certainly did not form an appealing picture to us, and for the moment the *Blue Water* was relegated to the background of our thoughts. Late in the afternoon we stumbled upon a tiny spring whose water was somewhat less nauseating than that which we had been forced to empty out of our canteens. It had to suffice until such time as we could find some fresh water. And as a fitting climax to a day of privations, disappointments and worse, I might mention, merely in passing, that another rock slide bursting suddenly upon us as we were preparing to pitch camp, came within a few inches of sweeping our whole party into eternity.

Well, the sum total of our day's progress, what with all these delays and misfortunes, was, I should judge, somewhat over ten miles. The sixth day brought a new string of untoward occurrences, some trifling but nevertheless annoying, others more thrilling, such as our encounters with several venomous snakes. Misfortune piled upon misfortune. All things seemed to conspire to discourage us and to thwart our mission.

It is needless to say that Guide No. 2 did not last very long. He deserted in much the same fashion as his predecessor, firm in the belief that our mission was doomed to failure, that we were deliberately inviting destruction upon ourselves by shutting our eyes to this long train of warning signs and forebodings of future evils. As to mileage covered on that sixth day, we could not boast of any more than on the previous day—about ten or eleven miles. We were still, as well as we could judge, about fifteen miles from the *Blue Water*. Would we ever get there? I began to entertain serious doubts about the matter. Some sinister influence—some inimical power was certainly piling up barriers, both physical and psychological, in our path.

Guide No. 3 was engaged after Morley and I had spent a hectic morning wandering over a mountain wasteland, in search for the lonely native outpost about which our former guide had dropped a mumbled word or two, just before he hit the trail for his own haunts. Frankly, we did not expect any marvels from No. 3. So accustomed had we become to their ignorance and their fanatical beliefs that his desertion on thirty seconds' notice would not have surprised us in the least.

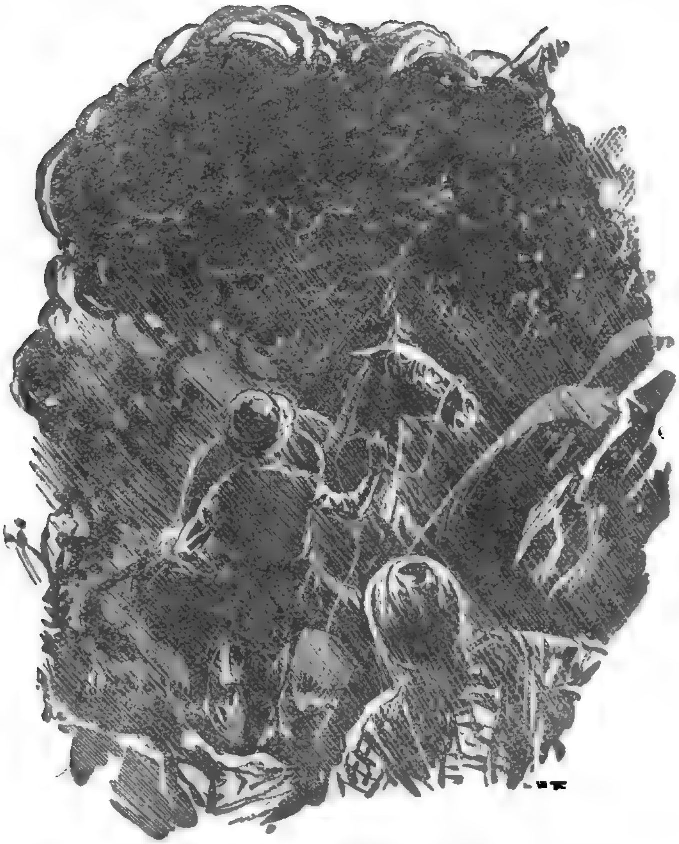
And, true to that inexorable schedule of hard luck that had dogged our footsteps and blazed our trail for almost a week, this seventh day of our quest brought along its disquieting quota of misfortune. A bare ten minutes after our early morning start, Morley's horse suddenly stumbled and flung him heavily to the ground. Luckily, he landed in such a way as merely to stun him. How he escaped without any broken bones is still a marvel to me, so unexpected and precipitous was his fall. A few moments of rest enabled Morley to recover from the daze and shock. He refused to be either dismayed or delayed by the accident, and was for pressing on without a second's let-up.

Although Morley was the one to whom this mishap might have meant so much in actual physical injury, the new guide seemed to take it almost as a stroke of personal ill-fortune. Yes—I was beginning to see the familiar signs of deep-rooted fear in the Indian's actions and demeanor. It won't be long, now, I mused wrathfully—we'll be looking for another guide soon, confound the whole infernal pack of them!

And then, later in the morning, as our little party was crossing on a stretch of relatively flat terrain, there came the mirage. Now a mirage was nothing unusual to me, or Morley, because of our extensive travels over the desert regions of the west. And, I daresay it was not entirely an unfamiliar spectacle to the Indian. But this particular mirage, standing boldly up there in the eastern sky—the image of a magnificent sheet of water, edged by luxuriant vegetation that waved in the breeze—the phenomenal reflection of some distant scene, appeared to strike panic in the heart of the guide. The vision lingered tantalizingly and then vanished as mysteriously as it had come—but the terror of the native did not vanish. He, too, was already beginning to see signs of evil and premonition all about him.

It was shortly after our noon stop that, for some inexplicable reason, our party became separated. We were passing through an almost impenetrable gulch, narrow and rock-strewn, with here and there a side passageway that led off among a wilderness of overhanging cliffs and towering stone battlements. It was with undisguised alarm that I presently discovered myself alone; the pack-horse was behind me, but there was no sign of either Morley or the guide, both of whom had been just a few paces ahead of me. Lost!—in this barren, God-forgotten land! This was not the first time in my life that I had been lost, but somehow this occasion seemed to bear a more terrifying import than any of the others.

Well—I need not go into the depressing details of this particular stroke of misfortune. I shall merely make the categorical statement that, late in the evening, the two halves of our disrupted party just stumbled upon each other. How?—I don't know. Some kind Providence must have guided our footsteps through this maze of desolation. We had probably wandered in circles for hours, for the spot where we finally came upon each other, was almost the identical place in the rocky ravine where we had first missed each other. Another day ended—another day of discouragements, setbacks, wordless warnings, ominous hints of the supernatural—and the total effective distance covered this day: no more than about three miles.



Suddenly, at an unusually brilliant flash of lightning, he stopped in his tracks, and let out an unearthly shriek.

CHAPTER IX

On Our Own Resources

It was late that evening, in our encampment within the sheltering ash-strewn crater of some extinct volcano, that our third and last guide took his departure—and that is the incident with which I began my narrative. We had been on the quest of the *Blue Water* for just a week. In that period of time we had succeeded in traveling a laborious seventy-five miles. Our path had been strewn with the most formidable collection of misfortunes, accidents, near accidents and delays that I had ever heard of, either in fact or in fiction. Three "noble" redskins had piloted us over the wasteland to this spot, and had deserted—singly and ignominously. And now here we were—Morley and I—in the centre of a limitless, trackless region of devastation and decay, with no one to whom we might turn for assistance, and with an extremely hazy notion of what we were hunting for and where we were going to hunt for it.

"No," vouchsafed Morley petulantly, as though in answer to some contrary statement of mine, although I had made no such statement, being in complete accord with his views. "If we want to find that mysterious body of tinted water, it's up to us to locate it—by our own skill, intuition, good luck, or whatever you want to call it." He paced the tent floor meditatively, stopping from time to time in front of the entrance and gazing out into the blackness that had engulfed the last of our wretched hirelings.

Well, we were thrown entirely on our own resources now—no timid shrinkings or superstitious terrors of a native guide to hinder or delay us, to fill us with apprehension and misgivings at the slightest occurrence that happened to be out of the ordinary.

"By George!" I exclaimed, almost with boyish glee. "I really feel, Morley, as though a great weight has been removed from my shoulders."

"And I," laughed my companion, "feel just as carefree. Ha!" he added with a chuckle, "guides that didn't guide—and only made the going harder. I'm thankful we're rid of them!"

I daresay we sounded like ungrateful wretches. Perhaps, in calmer moments, we might not have appraised so lightly the work of the three Indians in bringing us thus far. For, after all, we had come with their aid through seventy-five miles of almost impassable desolation. With only fifteen miles more to go, we were now within easy striking distance of the *Blue Water*—at least easy in comparison to what we had already gone through. How much of that long stretch of desert and mountains which now lay behind us could we have negotiated unassisted? We did not stop to question ourselves on that point. Idle conjecture! We were here, were we not?—and only a comparatively short distance from the strange body of sapphire water. So let us plunge on—just a short day or two of searching—we were bound to come upon it if we hunted hard enough—surely one can't help stumble over it sooner or later. Off to the north is where it lay—off somewhere in that cluster of peaks that rose in forlorn yet awe-inspiring splendor only a stone's throw ahead—at least it appeared no more distant than that.

Did I say a short day or two of searching? It was more nearly ten days. Ten days in which to cover fifteen miles?—well, we certainly traveled a hundred to negotiate those fifteen. Discouragements, hindrances and setbacks of a major and minor character beset us without number. The week of diligent travel that we had effected with the aid of our so-called guides was like a Sunday school outing in comparison with those ten days of privation before we set eyes on the *Blue Water*. More than once we were tempted to give up the whole quest—at least I was.

Getting lost now meant very little to us—we were perpetually lost! We had no more conception of which way to turn than the player in blindman's bluff. It was all a wretched twisting and meandering, down this valley, up to the next mountain top, a long sweeping look over a dreary waste of tumbled landscape, and down another breath-taking gorge and up the other side—scouring this way and that with no rhyme or reason about the whole thing. I was getting ready to quit, but my companion was far from any such ideas.

And then, although I am not in the least superstitious, I could see that the train of hard-luck—to give it a very mild name—was continuing unbroken. First it was a sudden and vicious attack by some unfamiliar animal or animals that made one whole night a ghastly terror for us. We drove off the marauder or marauders, but it was one hectic night, I can swear to that. Then our matches mysteriously disappeared, and being no adepts at the primitive methods for making fire, we had to subsist on cold, raw victuals—and that did not make things any more pleasant than before—far from it. Of course, after our original stock of edibles had been exhausted, we were compelled to depend upon the meagre food possibilities of the region—and meagre they were—nothing of any comestible nature growing in this barren soil, and only occasionally a bird or small rodent that fell victim to our guns. The food question was getting to be a serious one.

"Is it worth all the bother, Morley?" I grumbled, "it's nothing but groping in the dark—stumbling round and round in aimless circles." My erstwhile enthusiasm for the great adventure was beginning to wane noticeably. And who wouldn't feel the same after what we had gone through? But Morley, for one, would not.

"Buck up, Duncan," rejoined the chemist cheerfully. "You're not going to give up this easily, are you?"

"Give up?" I echoed. "Well, if you mean giving up a wild goose chase, why, yes—that's what I'm willing to do."

"And," added Morley, "miss the thrill of a lifetime—the sight of that blue gem of these mountains, the magic *Blue Water?*"

"Oh, to blazes with the infernal *Blue Water!*" was my querulous retort—perhaps a bit too sharply. "Are we certain that it even exists—except, maybe, in the infantile imaginations of these good-for-nothing Indians?"

"Now, my dear Duncan," replied Morley soothingly, "don't go and lose control of yourself at this stage of the game. I know it's been a trying time for us—a search that seems to be leading us nowhere. But I'm confident that we haven't much more to go—it's only a matter of hours perhaps."

"And you're still willing to believe in this *Blue Water* thing as though it were gospel truth?" I'll admit that my manner was more petulant than it had ever been to my friend.

"Perhaps not gospel truth," laughed Morley—he was the last person on earth to let himself become ruffled under any such circumstances—"but a matter that is safe enough to gamble on. I tell you, Duncan," he continued with evident warmth, "we can't quit now!—we've gone into the thing too far already. It's there—his arm swept an ambiguous semicircle to embrace the peaks and mountain tops that lay in a tumbled mass about us—"I tell you *it's there!* . . . somewhere in among that heap of rocks—maybe just around the corner for all we know—and I'm willing to keep up our hunt until we locate the lake. And remember what I told you, Duncan," he leaned forward eagerly, his piercing eyes flaming up with a fire of adventure and enthusiasm—"there's gold in that *Blue Water*—a new kind of gold—a different kind of gold—a kind that you have never seen! It may sound like pure conjecture—perhaps like a huge fairy tale, but I'm reasonably certain that we are going to find something of vast scientific importance associated with this lake."

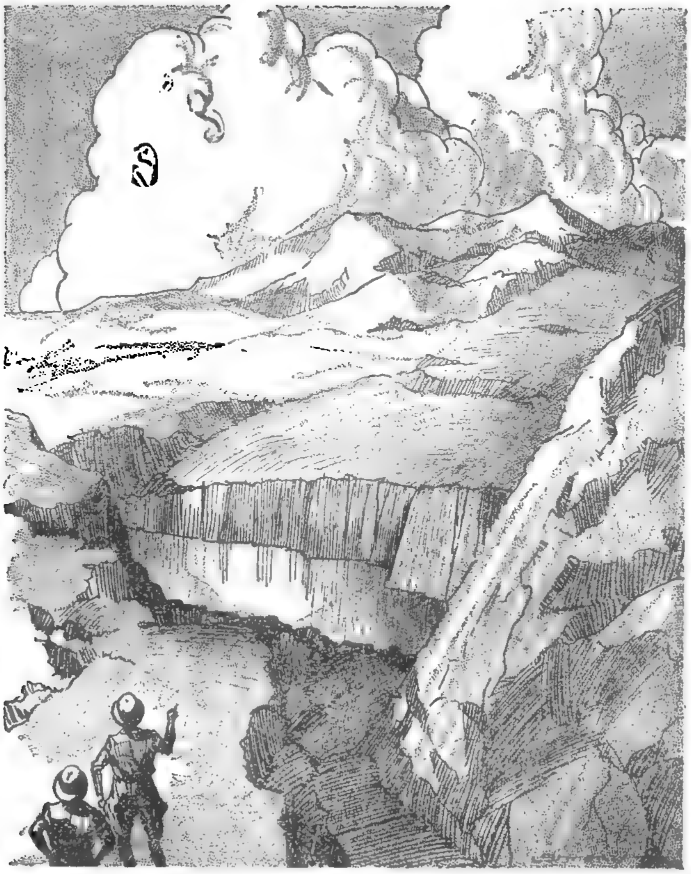
Again Morley was talking about the *Blue Water* as a concrete fact—as though it had already been located, charted, investigated, and thoroughly analyzed in all its aspects. Despite my personal feelings in the matter of this hypothetical lake, I could not but admire the keen hopefulness and the effervescing energy of my colleague.

"Well, Morley, I admire your nerve!" My capitulation was gradual, but in the end, complete. I don't know if anyone could have held out against such indomitable eagerness to continue on a quest, however rash or idiotic it might appear to be.

"Well, let's be on our way," my companion urged, "just a little more patience, Duncan, and we'll come through all right—of that I am certain. And, my good friend, I'll make a deal with you. To show you how confident I am that we are almost there, here's my proposition: If we don't find what we're looking for in, let's say, forty-eight hours, then, by George, we'll turn right around and steer the straightest, truest course back to civilization that this God-forsaken country permits. Are you with me?"

For answer I started my tired horse down the nearly sheer face of the cliff upon which we had stopped for a brief breathing spell. Behind me stumbled the two pack horses—the animal that hitherto had borne the sundry guides was now carrying half our baggage—and Morley brought up the rear. He was certainly an optimist, I mused. "Forty-eight hours——!"

Late that afternoon we found the *Blue Water.*



"The Blue Water *itself!" I gasped, in almost an awed whisper.*

CHAPTER X

A Mountain Gem

PICTURE, if you can, a body of water, about three miles long and scarcely a mile in width, set like a vivid blue jewel amidst a circle of towering peaks—a placid, rippleless sheet of liquid expanse, lifted fully seven thousand feet above the level of the sea and walled in by a rim of lofty mountains that reached upward to the sky all of two thousand feet higher still. There it nestled, a huge sapphire mirror, with the shadows of the encircling mountains photographed in gorgeous contrast on its smooth surface.

We burst in upon the *Blue Water* through a sort of cleft in the formidable rock wall that seemed to encircle it without so much as a break in its entire perimeter— not another opening appeared to exist anywhere in the smooth face of the cliffs—none except the crude corridor through which we had stumbled toward our first view of this matchless spectacle.

"Wonderful!—Remarkable!" exclaimed Morley in an ecstasy of almost juvenile glee. He clapped me joyfully on the back and danced up and down on the shore in huge merriment. I could scarcely restrain my own emotions at the sparkling view.

"The *Blue Water* itself!" I gasped, in almost an awed whisper. "—and I was all set to abandon the search—only a few hours ago!"

When the first excitement of the occasion had worn off, we set about to explore our discovery. The natural approach, upon which we had happened so fortunately, sloped down in a gradual sweep to the lake shore. It was roughly triangular in shape. The approach began in a mere chink between two almost vertical cliffs; about a quarter of a mile back of the lake, it widened out sharply in the direction of the shore and terminated in an irregular strip of rock-strewn beach about seven hundred feet in width. In passing through the apex of this triangle for our first view of the lake we were astonished to come across a straggly clump of trees growing in a little grassy clearing nearby—stunted and undernourished trees, to be sure, but vegetation just the same—and the first of its sort that we had seen in over two weeks of desert and mountain travel. Off to the left of the natural opening to the beach I caught a glimpse of a nearby level stretch of ground, and—wonder of wonders—*green grass,* and a few more gnarled trees. I remember wondering vaguely how anything could possibly grow under such adverse conditions. I know that I voiced my supreme amazement to my companion—think of it!—growing vegetation amid such utter desolation. And then we forgot the presence of trees, grass, mountains, even each other in the wondrous spectacle of the *Blue Water.*

Immediately to the left of our little beach, a rock promontory jutted out some distance into the lake. We scrambled out upon its precarious surface to the very tip, in order to obtain a wider view of the body of water. The indigo liquid stretched out evenly in all directions to the sheer walls of the confining cliffs against which the blue wavelets dashed unceasingly.

"Look!" cried Morley with high exultation. He knelt on the slippery rock and scooped up a palmful of water. It trickled through his fingers in beads of pure sapphire. "Look, Duncan! . . . do you know what this is? Just as I suspected from the start! It's *gold—blue liquid gold!*—COLLOID GOLD!"

Colloid gold!—I must confess that my notoriously sluggish understanding of matters theoretical caused me to miss the full significance of my friend's phenomenal announcement. Colloids? Now what in the world were they? —Some sort of abstruse chemical materials —passing curiosities that belong only in a laboratory—

"Colloid gold!—and a whole lake full of it!" continued my jubilant companion, with a majestic sweep of his arm that took in the entire expanse of *Blue Water.* "A thousand fortunes right before your eyes!"

I sensed the overpowering uniqueness of the situation, but I forebore asking too many silly questions. I knew that a complete explanation would be forthcoming very soon.

We hastened back to the little beach, for the sun had already set behind the rock wall that encircled the *Blue Water,* and darkness would be on us momentarily. Our tent was hastily set up a short distance back from the water's edge. We prepared our habitation to be as comfortable as possible, for we anticipated a protracted stay. Even without anything better than a meagre hint at the possibilities that existed in that placid sheet of water, I realized that a deal of work lay ahead of us.

CHAPTER XI

Colloid Gold

THAT evening, Morley loosened up verbally. I expected a scientific lecture, and I got it—a detailed recital of cold scientific facts woven on a dim background of suppressed eagerness and excitement.

"Now, Duncan," he began, in the most accepted professional manner, "what is a *colloid?*. Ha! I see you are somewhat hazy on the subject. Well, let me enlighten you.

"When you dissolve some substance like salt in water, the solid apparently disappears. In reality, it is broken up into individual molecules which scatter themselves through the water. The salt molecules are too small to settle to the bottom, and so we have a uniform dispersion throughout the liquid. We call this a *solution.*"

I nodded a ready assent. Unschooled as I was in chemical theory, this much was extremely elementary to me.

"Now then," continued my tutor, "suppose we take a handful of soil and stir it with water. The solid particles mix with the water and render it muddy. We call this a *suspension.* Even the tiniest speck of dirt in this mixture is many times the size of a molecule. In time the solid matter will settle to the bottom by its own weight, leaving the liquid above more or less clear."

So far, I mused, the lecture was highly kindergartenish. But I knew Morley. He never started in the middle. I had heard too many of his scientific explanations to expect any sudden alteration of his mode of procedure. Like a skilful lawyer, he always built his case right up from the ground.

"And now," he went on, "we come to a mysterious intermediate world—a peculiar state that borders on that of the true solution, and that of the mechanical suspension, yet is neither of the two, the queer condition that we call the *colloid state.* Take, for example, some starch, cook it in water, then examine the resulting liquid. It appears milky or cloudy, resembling therein an ordinary suspension. But the microscope reveals no visible suspended particles. The specks of starch do not settle to the bottom, no matter how long the liquid stands. Thus, it appears to be similar to a true solution. Evidently the scattered particles of starch are not quite down to the minuteness of individual particles, yet they are far smaller than ordinary suspended particles.

"In many other ways colloids are unique. They obey none of the well known physical laws that apply to solutions, nor can they rightly be classed with normal suspensions. They are in a class by themselves—and a mighty peculiar class at that.

"Now, as to our own particular case right here," and a gleam of eagerness swept across Morley's face. "A large variety of substances might exist in the colloid state—egg white, soap, cement, rubber and others. The simplest colloidal suspensions are those of metals like gold and platinum. Laboratory toys have these metallic colloids been—curious and interesting—but little more. And now, Duncan, look at our *Blue Water*—a vast natural test tube of colloid gold—from my first hasty observations, a colloidal suspension of singularly heavy concentration of precious metal."

"But Morley," I expostulated, "how can you tell that this blue liquid is what you say it is—colloid gold? By the color of it? By the mere feel of it? And supposing it *is* colloidal gold. Then how in thunder does it come to be out here?"

"Ah, my good friend," returned the chemist, with marked assurance, "I have seen this scientific curiosity too many times not to be able to recognize it when I meet it again. And as for the *why* of this *Blue Water,* I have a hazy idea that has been knocking around in the back of my head ever since the time when those Indians first told us about this lake nearly three weeks ago. I have a couple of stunts that I want to show you, Duncan, and I'm sure you'll get a better idea about colloids in general, and this one in particular, after you've seen them. But not now. It's too late, and I haven't my necessary materials in shape yet. But tomorrow I expect to answer both of your questions—how I know that the *Blue Water* is colloidal gold, and how the precious metal probably came to exist in this unusual form."

CHAPTER XII

Some Startling Experiments

EARLY the following morning, Morley was already engaged in preparing his apparatus.

"It's mighty fortunate, Duncan," he remarked over his shoulder as he made adjustments on his small hand-operated dynamo, "that we took along with us all this paraphernalia. It didn't look as though we would ever find any use for the vast load of material we included in the baggage, did it? But here is where we'll find all that truck considerably useful."

Shortly after breakfast my companion had his apparatus in satisfactory shape. Various electrical instruments were lined up on the small folding table that was part of our camping outfit. A small copper vessel rested on a tripod and was being heated by an alcohol lamp from below. Morley had his microscope out among the rest of the equipment, and I noticed that there was associated with it a queer collection of lenses, mirrors and other devices that appeared to be decidedly foreign to my elementary knowledge of this important optical instrument.

"First of all, Duncan," began my chemist friend, "I'll show you that the *Blue Water* is a colloid. I'll let you *see* the colloid particles in a sample of water from the lake."

"But," I remonstrated, "I haven't forgotten what you told me yesterday that those particles are so tiny that they cannot be seen through a microscope."

"Very true," was Morley's response, with a knowing smile, "but we are going to use a different sort of instrument—the *ultra-microscope.*"

He then proceeded to show me how, by means of a series of concentrating lenses, a narrow shaft of sunlight entering by way of a chink in the door flap of the tent, was converged into an intense beam of illumination. This sharp spear of light passed at right angles through a tiny glass container of some of the blue liquid located beneath the object-glass of the microscope. At Morley's direction I bent over the instrument and peered through the eye-piece. At first I could make out nothing. Being very much of a novice at such observations, I could not at first obtain that angle of scrutiny which, to an experienced microscopist, comes as an automatic process. My comrade gave me some essential directions to simplify the task, and at last I could make out a dim circle of shadowy darkness. Against this dark background I was able to make out a large number of specks of light—not of exceptional brilliance, but bright enough to be clearly seen in contrast with the gloom about them. But the most startling thing about these luminous particles was their strange motion. There was such a flashing and twisting and cavorting about the field of vision that it was positively dizzying. I tried to concentrate on one such speck, but after I had followed it in its erratic and zigzagging course for several seconds, it suddenly lost itself in a maze of companion particles and became indistinguishable from the host of other oscillating specks of light.

"Those flying spots that you are now viewing," explained Morley, "are particles of colloid gold in a sample of *Blue Water.* Although too small to be seen by employing a microscope in the ordinary manner, they show up just as you see them there when a transverse beam of light passes through the medium. In other words, colloid particles are invisible by direct light, but plainly visible by the diffused or reflected light which they cast off. It is much like the effect produced when a beam of sunlight enters a partly darkened room and makes visible the suspended dust particles that cannot ordinarily be seen."

I remained with my eye glued to the microscope, almost fascinated by the dancing spots of light.

"This strange zigzag motion that you observe," Morley continued, "is known as the *Brownian movement.* The fine specks of colloid gold existing in the liquid are continually bombarded on all sides by the molecules of water. Since these molecules do not move with equal velocities the suspended gold particles are unequally assailed on opposite sides. Therefore they move in this crazy haphazard fashion that you notice, reflecting, as it were, the molecular movements of the water itself. Of course the particles of an ordinary suspension, such as muddy water, are much larger and heavier than the water molecules, hence they will not exhibit this phenomenon of Brownian movement. A large boulder, you see, cannot be budged by shooting birdshot at it.

"It is this Brownian movement that counteracts the influence of gravity on colloid particles, and thus prevents them from settling to the bottom of the liquid. The Brownian movement, Duncan, is the most characteristic thing about colloids. This little demonstration is conclusive proof that the gold present in the *Blue Water* is in the colloid state.

"Ah—just a moment!" Morley caught himself with a faint chuckle, "I nearly forgot! How do I know that this colloid is *gold?* Isn't that the very first question that you shot at me?—and here I am talking about it so freely—as though there were nothing more certain in the whole world than that this body of water is chock full of colloid gold. Oh, yes—I'm dead certain about that to my own satisfaction, but a true scientist such as you are, Duncan, doesn't believe until he is actually shown."

He slapped me affectionately on the back. Really, I had never seen this erstwhile sedate and conventional chemist in such a jocular mood. This phenomenal discovery of his had evidently put him into the highest of spirits.

"Over here, you see," Morley went on, directing my attention to his boiling apparatus on the table, "I have another sample of filtered lake water that has been evaporating over a steam bath since very early this morning. Let us see how far it has progressed—ah! splendid!—It's almost down to dryness now."

The chemist then indicated the container over the alcohol lamp, with a small quantity of dark blue sludge simmering in the bottom of the vessel. The inside surface was coated with a hard scaly crust of the same color. After a few moments of waiting, the muddy sediment at the bottom was completely dry.

"Gold!" was my friend's simple comment. "Gold, as you have never seen it before—gold in an extremely finely divided condition."

He carefully scraped together the bluish residue from the sides and bottom of the container and put the powder into a crucible with some flux. Then he applied strong heat. Before long the powder had fused together into a dark mass at the bottom. Morley allowed the crucible to cool and removed the coagulated lump. Carefully he brushed off the dark encrustation and polished the metallic globule tenderly. Then he held it out to me for my inspection. It was the size of a pea, lustrous and yellow. I had seen that royal metal and handled the precious nuggets too often to be mistaken now. From its color, sheen and weight this substance could be but one thing—gold!

I glanced with unconcealed astonishment at my partner. He returned my look with one of triumphant achievement. I again fell to scrutinizing the glistening pellet in my hand, turning it over and over between my fingers, speechless with fascination.

HERE was the culmination of weeks of anxiety, travail and peril. This seeming wild goose chase was not nearly as wild as it had at first glance appeared. There within a few feet lay a great body of water, walled in by a barricade of mountain peaks, and literally gorged with precious metal. My head swam and my senses reeled at the mere vastness and incongruity of the entire notion.

"Whew—" I gasped to my unperturbed and smiling friend. "Can you realize what this means? Hundreds —maybe thousands of pounds of gold floating around in there, and just waiting to be scooped out. Why——!"

"Your estimate, my dear Duncan," broke in Morley complacently, "is somewhat conservative. When I complete my final analysis of the water, and finish making the necessary calculations, I suspect that your figures as to the total amount of gold present in the *Blue Water* will need some extensive revision."

"Hundreds of pounds," I replied wonderingly, "or hundreds of tons!—but hang it all, Morley!—how in the name of science and common sense did this mass of precious metal ever come to exist in such an unusual condition as the colloid state?"

For answer he turned to the table littered with experimental equipment and began to set up an arrangement of apparatus for some new demonstration. After a few moments of busy manipulation, with me hovering expectantly in the background, Morley straightened up.

"I'll need your assistance in this stunt," he remarked simply. "Your job will be to operate the crank of the generator—and in doing so, Duncan, I want you to gauge your speed so as to keep the voltage somewhere in the neighborhood of twenty. There—just up to that point on the dial—a trifle faster now—righto!—that's it—just keep it turning at about that speed—fine!—now you've got it Duncan!"

I turned the crank dutifully, while Morley busied himself with the rest of the materials.

"Now you see," he explained, "I'll send the current, which you are now so faithfully generating, through the water in this vessel by means of these metal bars, or electrodes. Notice that this one here in my hand is the positive terminal—the one through which the current from the generator enters. Do you see the end dipping in the water? It's tipped with gold. The other strip, fastened by means of the clamp, is an ordinary piece of copper. That's the negative electrode. Now watch carefully!"

Morley took a firm hold on the upper insulated portion of the gold-tipped rod and slowly brought the immersed part closer to the other electrode, below the surface of the water. I patiently turned the generator crank, eyeing the electrolytic apparatus keenly, with an occasional swift glance at the voltmeter to check the pressure, which regulated the current flowing from the machine. Nothing happened until the electrodes touched. Then suddenly a livid green flash illuminated the liquid, and as quickly disappeared.

"The trick is," commented my friend, "to maintain a continuous arc between the tips of the electrodes, by keeping them just the right distance apart. Now you just keep that voltage uniform, Duncan, and I'll see if I can't get the proper adjustment."

Again he brought the positive electrode up to the copper strip. Another vivid spark flashed out at the point of contact. Morley slowly withdrew the movable terminal, and the greenish flame seemed to be drawn out as the metallic tips became separated. The electric arc blazed fiercely across the narrow gap, producing a vigorous ebullition in the water, and coming through to our ears in the form of a muffled crackling. A few seconds of this violent electric disturbance and then it ceased.

"Just a little too much of a gap," murmured Morley, almost to himself.

The original procedure was repeated, with the rejuvenation of the queer under-water arcing. This time the chemist was more successful in maintaining the proper distance between the electrodes. The sparkling now settled down to a continuous flame that leaped through the liquid and cast an eery illumination upon the tense features of the experimenter.

But strangest of all was the change that was taking place in the water. From the point at which the electric flame was being generated, masses of blue coloration swirled and twisted in all directions through the liquid. The effect was very much like that produced if one were to fill a medicine dropper with blue dye, immerse the tip in a pot of water, and squirt out the tinted liquid below the surface.

Clouds of this blue coloring generated by the arc whirled about in the agitated water. Soon the entire contents of the vessel was tinged with blue. The coloration became more and more pronounced as the sparking continued uninterruptedly. Morley held the positive electrode with a steady hand, so that there was no break in the flow of current, while I strove to maintain the required voltage given by the generator.

After several minutes of continuous operation my companion signaled with a nod of his head, and I stepped cranking. He removed the electrode and held up the container to examine the liquid more closely.

"Artificial Blue Water," was his terse comment. And to tell the truth, I could see very little difference between the product of this spectacular electrical experiment, and the sample of original lake water in another vessel on the table nearby. Perhaps there was not an absolute coincidence in the shade of blue, but the two liquids, even to my untrained eye, appeared unquestionably alike.

"What we have just been through," explained Morley, "is a demonstration of one way to produce a colloid suspension in the laboratory—by the method of *electrical dispersion.* As the current jumps across the gap from the positive to the negative electrode, it literally tears away millions of gold atoms to form a sort of metallic vapor. Subsequently there is a recondensation into colloid particles, which produces those bluish clouds through the liquid. And, as a result, we have a suspension of colloidal gold—a sample that is practically identical with that taken from the *Blue Water.*

"Is it your opinion," I ventured, "that the gold in that lake yonder came to be there by the same method as the gold in this water?"

"Well, Duncan," was my friend's rejoinder, "there is no positive proof—and I daresay no ready method of getting at any proof. But I'm pretty firmly convinced in my own mind that the *Blue Water* came about as a result of some peculiar subterranean electrical disturbance, similar in nature to our little colloid dispersion experiment. This section of the country is notably rich in gold and other native metal deposits. Undoubtedly a large vein of gold once ran through this ground—perhaps, for all we know, still runs right down here below our feet. Now what the source of the electrical current was—and it must have been a current of tremendous strength and long duration—I am frank to say that I cannot guess. Certain it is, nevertheless, that there have existed and possibly still exist, two huge natural electrodes deep below the surface of the lake, one or both of them of pure gold, with a high difference of electrical potential continuously maintained between them. That would be sufficient to produce just the proper conditions for the formation of so large a volume of colloidal gold."

I whistled softly in astonishment at the enormity of the idea—yet, incredible though it sounded, it appeared to be the only solution of this enigma of the *Blue Water.* For how else could so formidable a quantity of collodial gold have been formed by natural processes? The question flashed into my mind. What about *supernatural* processes? Up to this moment, the almost unbelievable series of queer happenings which had befallen us on this unusual exploration, had been relegated to the background of our consciousness. I reminded Morley of these occurrences and the possible association of these phenomena with the origin of the *Blue Water.* Frankly, I was ready to accept and believe almost anything now. My friend laughed at me—a bit harshly, I thought. It occurred to me how willing I had been to laugh at his sudden interest in the mysterious body of water as first described to us by the natives some weeks ago. At that time I was prepared to ridicule any notion regarding the supernatural—now it was Morley's turn to ridicule. No—he was of the opinion that the *Blue Water* was the product of the interaction of some forces and conditions which, though mysterious, were none the less natural.

CHAPTER XIII

Frustrated

OUR various experiments and demonstrations, together with the associated discussion and explanations, had already consumed most of the morning. So far, except for a brief view of the *Blue Water* late the preceding afternoon, we were totally ignorant of the great colloid lake about which all of Morley's experimentation so intimately revolved.

Consequently we sallied forth after a hasty lunch to explore our find a little more thoroughly. A few steps brought us again to the edge of the lake, where the bluish wavelets rippled incessantly upon the pebbly beach. For a brief spell we stood speechless and motionless on the gently curving shore, overwhelmed once again by the immense grandeur of the spectacle—a glistening sheet of liquid ultramarine hemmed in on all sides by perpendicular cliffs like the towering walls of a fortress.

"We really ought to attempt a circuit of the lake," suggested Morley. "It's essential that we learn as much concerning it as we possibly can. There is a lot about the geology of this particular location that I should like to ascertain. It would help a great deal in getting at the correct explanation of the unusual phenomenon which we have here."

I gazed dubiously around the formidable circuit of peaks, standing erect like sentinels on guard, and shook my head. "No, Morley," I asserted with conviction, "there doesn't seem to be a ghost of a chance for our getting very far on such a trip."

"Yet we can try it," my friend insisted. "I am particularly anxious to learn if the *Blue Water* has any natural inlet or outlet. Information along those lines would go a long way toward clarifying some points that have been puzzling me in reference to the concentration of colloid gold in the lake water."

Accordingly we turned left on the little beach and proceeded carefully along the shore line. Reaching the rock promontory which we had come upon yesterday, we again clambered out on its ragged surface to the extreme point jutting out like a huge finger a hundred feet or so into the sapphire water. Standing there we scanned the encircling cliffs minutely with the aid of powerful binoculars, but could discover no break such as would indicate the presence of either an inlet or an outlet to the lake.

"Of course," I remarked hopefully, "that proves nothing, because we have yet to see what lies beyond those two or three bends in the contour of the cliff-line out yonder. Too bad this peninsula here doesn't extend way out to the middle of the lake—we'd see what's hidden behind there all right."

"There's nothing for us to do," stated Morley, "but sneak around the back way." We returned to the mainland and continued the rest of the distance along the rock-strewn shore until we came to the bare wall of the cliff, towering hundreds of feet in an almost vertical stretch. No chink, no break, hardly a toe-hold over the entire expanse of rock. Patiently we worked our way toward the left along one of the legs of the rough triangle which constituted our private natural beach.

Before long we had progressed to the narrow apex of the triangle that formed the gateway through which we had burst in yesterday, for our initial view of the magnificent *Blue Water*. At this point we passed the group of trees we had first observed—that anomalous clump of feeble vegetation, eking out a precarious existence in a foreign and utterly hostile environment. From this spot we veered sharply to the right and traversed the small open stretch of grassy surface which we had discovered lying off to one side of the opening to the beach. Here, I might mention, we had turned our horses out to graze, thankful that we could rely upon this paradoxical bit of pasture land to supplement our none too ample store of fodder.

After crossing this open space, we plunged directly upon the barricade that walled in the lake of colloid gold. But the frowning cliffs repulsed us as effectively as they had on the shore itself. We zigzagged with tireless determination, but at each point were met by the adamantine barrier. No rift gave even a suggestion of approach. Thwarted on this front, we retraced our steps to the beach, and started a concerted drive on the region to the right of our triangular clearing. Needless to say, we met with the same hopeless rock fortification.

"It's obvious," panted Morley as he sank down on a rock near the head of the promontory, "that the barricade is as impregnable as Gibraltar." We had just returned from the futile investigation along the shore line to the right, and on beyond through an almost impassable jumble of volcanic debris in an effort to penetrate the rock barrier. This vain attempt at exploration was strongly reminiscent of our weeks of stumbling advance into this God-forsaken region.

"Perhaps we are wasting a lot of valuable time and energy," I suggested, "in trying to accomplish a task which is really not essential. True, it may be interesting enough to explore the entire lake locality to find the inlets and outlets, and maybe to discover the sources of all the colloid gold. But the truth is: *There's the gold!* Where it came from—how it got here—those are beside the point! The immediate question is: How are we going to set about exploiting this great find? It seems to me, Morley, that that is the matter of paramount importance just now."

"That's right, Duncan." My friend's tones were rueful but resigned. "Putting aside the theoretical aspect of the situation, the uppermost point at present is to work out the best method of extracting the gold from the *Blue Water*. Yet, I can't help thinking," and Morley toyed abstractedly with the brim of his hat, "how handy a boat would now be to us—a canoe or even a makeshift raft. Apart from the help that it would be in determining the contour of the shore-line and the geological formation about the lake, it would be of considerable usefulness in the practical work of gold extraction.

"Well now," I ventured, "if a boat would be of such great usefulness as you say, why can't we rig up some temporary affair from whatever materials we happen to have, or chance to find in the vicinity. Now let me see—what could we use?—Why!—hang it all!—to be sure!—that clump of trees up there at the opening to the clearing! Splendid!—excellent!—We ought to be able to do something with them. Come on, let's go up and take another look at them!"

Morley promptly fell in with my present enthusiasm —my feeling now being in sharp contrast with the apathy that I had formerly evinced toward the notion of a boat. On reaching the group of trees I immediately recognized a number of birches among them. With my considerable experience in backwoods adventuring, I was quick to see the possibilities. No better material than birch bark could be found for the construction of a simple, light, yet seaworthy canoe.

Indian fashion, we stripped the bark from all the birches that we could find. The trees being so puny and stunted, I could readily perceive that we were going to need every square inch of bark available for building even the smallest canoe. By fastening the pieces together using gum from some spruce trees and fibres from the roots of trees, we fashioned a light, flat-bottomed canoe large enough to hold us both. We took particular pains in fastening the strips of bark to one another carefully.

"Our noble vessel will have to be absolutely seaworthy," remarked the chemist significantly. "There's no telling how deep this lake is. If there's anything to my electric dispersion theory in explaining how the *Blue Water* came about, then it's deeper than you and I ever suspect."

Two rough seats were fastened fore and aft, and our little craft was ready. When we brought her down to the water's edge and ceremoniously launched her, we found the canoe nearly—but not quite—water-tight.

"Nothing to worry about, Morley," I was quick to reassure my companion, whose mien became decidedly crestfallen when he contemplated the droplets of blue liquid oozing in rapidly through the chinks. "By tomorrow the bark will have become sufficiently softened and swelled to close up all but the tiniest leaks."

I cut several of the straightest boughs that I could find in the clump of gnarled and twisted trees and trimmed them down for use as paddles. We were now ready for any maritime or rather lacustrine adventure.

The afternoon was pretty well gone when the canoe was completed, so that it was out of the question to attempt any lengthy trip of exploration, even had the craft been perfectly seaworthy. Since it would require an entire day, or perhaps two, for thorough swelling of the bark, we regretfully abandoned the sailing project for the present, and busied ourselves with various duties pertaining to the big task of extracting the gold from the colloid water. Whatever the contour or the geology of the lake might turn out to be on closer inspection, the problem nevertheless remained to develop some plan of campaign.

The following day was consumed entirely with making preparations for that immense job. This much was clear: Whatever was to be done, we ourselves had to do it now right here on the spot. We were entirely too far from civilization in actual miles of travel, even to think of going back for supplies, apparatus or additional help. Our best bet would be to set to work in a crude way, with whatever implements at our immediate disposal, and extract a fairly large quantity of gold. This we would carry back with us, together with a sample of the natural lake water itself, as well as necessary photographs, maps, etc. Of course, from the legal angle of the case, we were not yet prepared to discuss facts and possibilities. All we knew was that the entire vicinity was part of the state lands, and, whatever the final plan to be worked out for exploiting this unheard of source of precious metal, it would have to be formulated with the proper authorities. However, this did not alter the scientific aspect of the case. Were it only from a perfectly unselfish and altruistic angle, the situation merited our entire attention and our maximum effort.

During the evening—the third of our stay on the shores of the *Blue Water*—Morley, both for my edification and his own information, went through a number of other colloid experiments along the lines that he had followed in his earlier work here. He prepared a large quantity of colloid gold by this spectacular process of electrical dispersion and conducted a Brownian movement demonstration on this sample and on another sample of lake water. The two appeared to be identical in behavior. Further, Morley subjected both blue liquids to evaporation, and fused the residue in each case. The resulting globules of gold were as indistinguishable from each other as the proverbial two peas in a pod. Optically, analytically and chemically the two liquids were identical. It was merely more corroborative evidence, explained my friend, as to the correctness of his original conclusions.

CHAPTER XIV

Exploring the Blue Water

A CAREFUL inspection of our canoe on the following morning revealed to our great delight that the bark had become sufficiently seasoned to eliminate all of the serious leaks. The rest were too insignificant to cause any real apprehension. With a supply of essential materials and implements, including an improvised sounding-line for determining the depth of the lake, we shoved off from the beach and headed out first toward the centre of the lake.

The majestic effect produced by the *Blue Water* was enhanced a hundred fold by the view from our new point of vantage. Stationed as we were in the centre of this roughly oval sheet of deep blue water that stretched about three miles north and south and a mile east and west, we enjoyed a commanding view of the entire lake. The rock barricade that enclosed it appeared even more mighty and formidable than before. From our central location, with all points on the perimeter of the lake now clearly discernible, we could make out no important break in the solid cliffs that bounded it on all sides, save for the few hundred feet of open stretch which denoted our little natural beach.

The water itself was almost indigo in hue, signifying an unusual depth. I reeled out the weighted line hand over hand, Morley measuring as it went over the side of the canoe. One hundred feet—two hundred—two hundred and fifty!—We glanced at each other in amazement as I continued paying out the line. Three hundred and fifty—four hundred! The *Blue Water* was greedily taking our line and clamoring for more. In a few minutes every inch of cord was overboard, and no signs of the bottom as yet. *Five hundred and twenty-seven feet!*—and no indication of how much farther down the floor of the lake really was!

Systematic sounding operations were then begun, working from the centre in toward the west cliff. Working slowly toward the land, we could detect no bottom with our longest stretch of line until we were less than two hundred feet from the sheer rock wall. At this point the weight at the end of our line scraped on the bottom, indicating a depth of somewhat over five hundred feet. Here the floor of the lake came up at a very sharp angle—Morley calculated it as being about sixty degrees. When we reached the face of the cliff, the depth was still well over one hundred feet. A summary of our findings revealed that, after a sheer almost perpendicular drop at the edge, there was a steeply sloping shelf, and then another precipitous descent to an unfathomable depth. All other observations had to wait until we had completed a series of soundings around the entire perimeter of the *Blue Water*. These indicated to our immense astonishment that the contour of the entire lake bottom was substantially the same as that revealed by our work in that one sector near the west shore.

When the task was completed, Morley simply had to cast all other duties aside for the moment and busy himself with some important calculations.

"You see, Duncan," he revealed, looking up from his figures, "up to this point I have not made any attempt at computing the total quantity of gold in the *Blue Water* for the very simple reason that we had not even the remotest notion regarding its depth. Even though we haven't succeeded in touching bottom over the greater portion of the lake, we can at least make an assumption or two, and get some approximate idea as to the *minimum* gold content.

"Now let's take some rough figures, in order to simplify the arithmetic. Length of *Blue Water*, 15,000 feet; width, 5,000 feet; mean depth, *not under* 500 feet. That gives us about 37½ billion cubic feet of colloidal gold liquid. Now the qualitative analysis which I performed on the lake water yesterday indicated a concentration equivalent to about one-tenth of an ounce of gold per cubic foot. Working this out on the basis of the ordinary avoirdupois system of weights—it would, of course, be higher if I used the Troy system, that is always employed in weighing precious metals—we find that the *Blue Water* contains, as a very minimum, *over one hundred thousand tons of gold!*"

"One hundred thousand tons!" I echoed. The very thought of this enormous mass of wealth was sufficient to send my senses reeling dizzily. I was unable to comprehend so vast an accumulation of this precious yellow metal. I wondered vaguely if there existed as much gold as that throughout the entire rest of the world, both above and below ground. I laid no claim to being anything of an economist, yet I had a dim notion of what would happen to the monetary system of the earth if so tremendous a stock of gold were to be dumped suddenly upon the market. About this last matter I ventured to question Morley.

"No need for any worry on that account," laughed my friend with a gesture of reassurance. "What we are concerned with at the present moment is the scientific angle of the matter. It remains for future planning to work out the economic side of the case. You can rest assured that it will be taken care of by agencies which are fully competent to deal with such matters. All we can be certain of now, Duncan, is that you and I are in a position to make an unprecedented contribution to science."

Another circuit of the *Blue Water*, made after we had completed our sounding operations, confirmed Morley's original belief in the absence of any inlet or outlet. The precipitous cliffs reared their stern masses to the sky in one long uninterrupted line. There was no point in the entire circuit at which a subsidiary stream might either enter or leave the lake.

"Nevertheless," mused the chemist thoughtfully, "this does not by any means constitute conclusive evidence. Possibly there are subterranean passageways that pierce the solid rock deep below the lake surface. In fact it appears very likely that there must at least be a hidden inlet of some sort. Have you ever stopped to consider, Duncan, the matter of spontaneous evaporation of lake water caused by the sun's heat?"

I readily confessed, first to myself, and then aloud, that I had not given the matter any consideration whatsoever.

"For ages of time, perhaps," continued Morley, "water has been constantly evaporating from the lake surface. Yet, if you examine the face of this rock, you will observe that there are no markings of any sort to indicate former higher levels. Except for this thin layer of blue gold residue at the present height of water, the face of the cliff, you can see, is perfectly clear. I am not ready to admit that sufficient rain falls in this region to compensate for the loss of water by evaporation. The only workable hypothesis is that there is one or possibly more underground inlets that supply the lake with fresh water at about the same rate as it is drawn away by the sun's heat. Or perhaps these hidden streams of water coming into the lake are already charged with colloidal gold from some distant spot where it is generated by the process of electric dispersion, or some similar method. If that is really the case, then the gold concentration should be getting stronger and stronger as time goes on. Maybe the *Blue Water* is really an almost inexhaustible source of gold—just as fast as we were to extract the precious metal, the supply would be replenished from this hypothetical source."

Even though all this was pure conjecture, the mere notion of such a phenomenal action going on right under my feet was, to my mind, little short of staggering.

Morley collected for subsequent analysis a considerable quantity of the blue incrustation that had collected on the rock wall at the water level. By the time we had completed the second circuit of the lake, the afternoon was pretty well advanced. We returned to our starting point and spent the remainder of the daylight hours in routine exploration in the vicinity of the camp.

CHAPTER XV

More Experiments

"I'VE been doing a lot of thinking, Duncan," remarked my partner that evening through a thin hazed tobacco smoke, "about the most practical method of extracting the gold from the *Blue Water*." The utensils and implements associated with our very simple meal had been cleared away, and Morley was working diligently over his inevitable chemical apparatus.

"Of course," he went on, "evaporation would by all odds be the most effective way of getting all the gold out of the lake—assuming, of course, that it ever would be deemed feasible to extract it all. But just think of the stupendous task of evaporating many billions of cubic feet of water! Unquestionably, with the prospect of so vast a return in riches, no means would be considered too impracticable—none would be regarded as too far fetched. Yet there is an easy short cut which has occurred to me. It's so ridiculously simple—and yet it needs some considerable experimentation to work out the details. Let me show you what I mean. The actual demonstration is only a moment's work."

I sensed another illustrated scientific lecture—and I was not disappointed. Eagerly and attentively I listened to my friend's explanation of his curious plan.

"You remember, don't you, Duncan," began Morley, "the peculiar erratic motion of these colloid gold particles to which the name 'Brownian movement' has been given? Well, the existence of this motion raises the question as to why the tiny particles do not collide and aggregate into masses of sufficient size to settle out of the liquid as a solid sediment. The answer is, the electrical state of these colloid specks. Careful experiment shows that each tiny particle in a colloid suspension possesses an electric charge. These charges, being all of the same polarity, cause the particles to repel each other. The action is probably very similar to the action of two magnets when the north poles or the south poles are brought close together. The phenomenon is shown in the divergence of the leaves of an electroscope. Most likely, the behavior of the colloid specks is merely another application of the fairly universal concept: Likes repel each other, while unlikes attract each other. Most colloids are negatively charged; among these is gold. This little electrical arrangement which I have assembled here will demonstrate the electrical properties of our lake water pretty clearly."

Morley poured some of the blue liquid into the bent curve of a glass U-tube and filled the two straight limbs with water. This manipulation was effected with considerable care, so that no mixing took place between the colloid gold liquid at the bottom and the two columns of clear water resting immediately upon it. Next, he dipped a metallic electrode in each limb of the tube, connecting them by wires to the hand-driven electric generator. This time Morley chose to crank the machine, while I watched the U-tube closely. When the current began to flow through the apparatus, no effect was at first visible. After a few minutes, however, I observed a change taking place in the tube. The blue liquid in the bottom curve was no longer in the same position that it occupied at the start of the demonstration. On one side, the blue coloration was ascending into the straight tube of clear water, while on the opposite side the tint of the liquid was becoming noticeably lighter. This movement was taking place so slowly that it was almost imperceptible. Nevertheless, after the current had been flowing through the device for about five minutes, the blue color was well on its way around the bend and up one side of the apparatus. I was quick to observe that the levels at the top of the tubes had not been disturbed, which meant that the liquids, themselves, were not in motion, but only the coloration—which I took to represent the colloid gold particles—were traveling toward one terminal.

"That's the positive electrode," explained Morley, pointing to the metal strip toward which the gold was slowly migrating. "Unlike things attract each other. Positive charges on the metal terminal attract negative charges on the gold particles. In time all the gold will have migrated to the vicinity of that electrode. This phenomenon goes under the name of *electrophoresis*. Interesting as this demonstration is, however, it does not offer any direct means for extracting the colloid. Remember, Duncan, that although the metal has all moved to one side of the tube it is still in the same colloid condition. Yet, it points the way to another matter in connection with the electrical properties of colloids, which might turn out to be of immense value in our work of gold extraction."

The chemist interrupted his discourse and proceeded to demonstrate his point. He carefully weighed out a quantity of white crystalline material from a jar, dissolved it in water, and poured the resulting solution into a measured volume of some lake water in a glass beaker, stirring constantly as he poured. As I observed the blue liquid keenly, I noticed, after a brief interval, that a distinct change was taking place. The coloration in the upper section of the vessel was thinning out, while the lower portion was acquiring a deeper hue. Before very long, I was certain as to just what the nature of the new change was. The colloid gold was precipitating to the bottom of the beaker. The very thing which no colloid particles were capable of doing, according to my understanding of Morley's explanation, namely, to settle as a sediment, was here occurring right before my eyes. In a few minutes a thin layer of dark blue mud rested at the bottom of the glass dish, while the supernatant liquid was now only faintly tinted.

"There is one of the most interesting of all the curious facts about colloids," began Morley by way of explanation. "Since colloid particles are electrically charged, then any substance which bears an opposite charge will neutralize the electrical condition of the colloid bodies. The particles will then coagulate into larger masses, and precipitate to the bottom of the liquid. The substance which I added to the first beaker was sodium chloride—common table salt. In solution, as you know, this compound splits up into positive sodium particles and negative chlorine particles, these tiny units being known as ions. Since colloid gold is charged negatively, it is the positive sodium ions that cause the neutralization and the resulting precipitation of gold.

"Now there you have a neat and very definite method of extraction. No boiling away of vast quantities of water as in the evaporation process—no complicated electrical equipment and manipulation—merely add your precipitating salt and filter off the gold sludge at the bottom. Simple, isn't it, Duncan?"

As always before, I was ready to admit anything. There seemed to be no end to the uncanny things that my extraordinary partner could accomplish with these mysterious colloids. It did not require more than a moment's reflection on my part to see the striking import of this novel method of gold extraction. Suddenly, a disturbing thought entered my mind, and I hastened to unburden it:

"If salts are able to precipitate colloids, why not the ordinary minerals in the ground? And if so, then isn't there danger that an inflow of ground water containing dissolved salts will in time cause the coagulation of all the gold? Great Scott!" I added as a sudden idea flashed into my thoughts. "Can you picture a hundred thousand tons of gold lying forever sunken at the bottom of that bottomless hole in the ground?" My emotions were evidently running away with my logic.

Morley laughed in that merrily tantalizing way of his. In the face of that levity, I knew that my fears, whatever they might be, were groundless.

"That matter," he replied easily, "I have already taken into consideration. In fact, one of the things about which I was terribly worried at first was the possibility of some such influx of minerals into the *Blue Water*. In our circuits of the lake today, I took particular pains to eliminate the likelihood of there being any visible inlets. We noted none, which minimizes the danger of loss of gold from that angle, but does not remove it completely. For we are by no means certain that there is not an underground stream which is dumping a steady load of mineral salts into the *Blue Water* and thus methodically robbing it of its precious colloid content."

I was startled by this untoward possibility. "Then we'd better be getting busy on this job of extracting the gold before there is no gold left for us to extract!" I was burning up with the vexatious thought that if we didn't hurry, all our efforts would be in vain.

"Your conclusions are perfectly sound," Morley replied with utmost complacence. "Possibly there is a steady loss of gold from the lake because of electrolytic precipitation due to the action of minerals. But remember, Duncan, that with the ordinary salts, the speed of coagulation is very slow. And besides, it takes an unusually large concentration of even a moderate amount of gold colloid, as evidenced by the sodium chloride demonstration. Bear in mind that only compounds of the higher valence metals can make any damaging inroads into this immense treasure-house of colloid gold. If there is any mineral salt inlet, and I don't for a moment deny the possibility of such a stream, don't you think, my dear friend, that the precipitating action has been going on now for a period of time which is well beyond our powers of comprehension? Yet, in spite of such losses, there still seems to be a fairly good concentration of gold left in the *Blue Water*. It is my frank opinion that there really is a steady coagulation going on in the lake, but that there is a compensating accretion of colloid as a result of the constant action of this immense electric arc that I believe to be the source of the wealth now floating about in that water out there. In fact, as I have already mentioned once before, I have reason to suspect that there is not a perfect balance between the forces which might be depleting the supply of colloid gold and those which are engaged in adding to it—that the concentration of precious metal in the *Blue Water* is mounting steadily rather than decreasing with the passage of time."

I bowed to the superior knowledge and logic of my indefatigable companion. Nothing seemed to daunt him. He was as certain of his theories and his beliefs as though they were already well-established facts.

CHAPTER XVI

Osmium Again

THE next two days were immensely busy ones for us. Even had we desired to linger on the shore of this fascinating blue gem stuck in such a gorgeous setting of austere mountains, actual necessity would have served to quench our ardor materially. Our food supply, always a decidedly meagre one, was in grave danger of running out. On our journey to this spot, after our initial commissary had begun to show signs of depletion, we had succeeded in bolstering it slightly by the addition of various small game that had unluckily stumbled across our path. But here at the *Blue Water* we found very little opportunity of living off the land. My friend busied himself largely with the technical work connected with the colloid lake, while my task was to hunt up the required provender. To my sore regret, I soon discovered that uncommonly few food animals—or any animals for that matter—were foolish enough to stray into this desolate domain. And in the bargain, our already gravely depleted water supply was down nearly to the vanishing point. There had been no rain since that violent shower on our fourth day out from the Indian village. That prodigious downpour seemed to have been soaked up avidly by the parched ground, and not a visible vestige remained of it above surface. In my foraging trips about the vicinity, I carefully scoured the country for any signs of a spring or rivulet, but met with no success. There was not a drop of fresh water evident—no other sort of water either—nothing but the wide expanse of that tantalizing sapphire lake which held in its bosom so fearful a wealth of gold. To be sure, if it should come to an actual pinch, we could very well distill some of this *Blue Water* to get rid of the gold, thus making the water fit to drink—the irony of such a situation struck me very forcibly. However, it was obviously a matter of prime importance that we dispatch the necessary work on the shore of the lake and hasten back to civilization with the news of our momentous discovery.

On the morning following his demonstration of the precipitating effects of salt, Morley suddenly brought up the matter of his synthetic osmium compound. To the best of my recollection, it was the first time that either of us had mentioned this curious material in over three weeks—ever since we had first heard from the natives about the fabulous *Blue Water.* In fact, it had slipped completely out of my mind in the great stress of hunting for the colloid lake, finding it, exploring it and planning for its exploitation. Maybe Morley had not really forgotten about it, but I cannot recall whether or not he actually brought up any reference to it during that entire period.

In working through the small supply of chemicals which constituted his laboratory, Morley came upon the quartz container with its precious two pounds of *osmium supernitrate* which we had wrested from the rocky Nevada soil after months of strenuous labor. He tenderly removed the jar from its protective sheathing of felt and held it up to the light, so that its curious iridescent lustre gave it the uncanny appearance of a solid mass of mother-of-pearl.

"There's the cause of it all!" he announced with a touch of pride in his voice—an emotion that was uncommonly rare in this simple unostentatious worker. "If not for our far-flung hunt for osmium we never would have stumbled upon the trail that has led us to the *Blue Water.* But don't think, Duncan," he added quickly, "that we're through with osmium—not by several long shots! Remember what I told you way back at the start about my hopes and plans in connection with *osmium supernitrate.* Just as soon as that little affair of the colloid gold is dispatched to our complete satisfaction, then we'll start where we left off and pursue this osmium matter to its logical conclusion. . . ."

He replaced the thick wrapping with the utmost care and stored the priceless chemical in a far corner of the box-like container that housed his miniature laboratory.

Mind you, there was not the slightest hint at that time, not the faintest visible indication on the part of Morley that he in any way associated the *osmium supernitrate* and the colloid gold. Just imagine, if you can, the unheard-of combination of circumstances, fates or whatever you will, which at the present moment brought out into the light of day this jar of osmium salt, with all its momentous possibilities and potentialities in the direction of our present colloid problem—only to be relegated once again to the obscurity of its former hiding place. To think that Morley in that momentary flash should have been guilty of so drastic an oversight—so fatal a lapse of almost elementary chemical knowledge—why, it is hardly conceivable! Looking back at it now, with the surety of a calm retrospect, I can perhaps condone this serious mishap. Morley had been working under a great stress. In the hectic excitement associated with the recovery of gold from the *Blue Water,* it is perhaps pardonable that he should forget, for that fatal moment, about those extraordinary powers possessed by his synthetic osmium salt—those powers of which he himself had given me a sketchy outline at the beginning of our metallurgical hunt.

At any rate my ordinarily keen and brilliant chemist friend failed to grasp the vital point—that he held there in his hand the key to the whole problem of colloid gold extraction. As for me, I certainly was in no position even to imagine that there existed the slightest connection between *osmium supernitrate* and the *Blue Water.* So that the quartz jar, with its padding of felt, went back to the limbo of the dark box of chemicals, unrecognized and unmolested.

Perhaps I may be guilty of making too much of this one point. But I cannot emphasize too forcefully the fact that there lay the crux of the entire situation. I feel very strongly about this matter—Morley feels it now even more than I do. And so I trust that you will forgive my verbal weeping and wailing and gnashing of teeth—anyone else under similar circumstances would not feel any different. Well—enough of this matter for the present.

For reasons which will subsequently become apparent, I might add a few words at this point in reference to another matter of great import. You recall, of course, the peculiar circumstances under which we first learned of the *Blue Water,* and the train of bizarre incidents which made our very existence unbearable during our hunt for the mysterious lake. I need not but mention the premonitions of evil that beset our progress—the difficulties that we experienced with our various Indian guides—their terrors and their desertions—the avalanche—the storm—the legendary Blue Demon guarding the *Blue Water*—the misfortunes and privations which we were led to suppose as being obstacles deliberately set in our path by this imaginary monarch, in order to discourage us from trespassing on his sacred domain.

To be sure, we had taken no stock in the entire fairy tale. And when, on our sudden bursting in upon the glorious colloid lake, the procession of untoward incidents had suddenly ceased, the whole fantastic story slipped from our minds as completely as though nothing had ever happened. During our week's stay on the shores of the *Blue Water* we were too deeply occupied in our tasks to give the matter of evil spirits and unfortunate occurrences even a passing thought. Nothing transpired during that week to mar the perfect and orderly progress of our plans.

Here, too, I may be accused of ringing in something which on the face of it appears decidedly irrelevant to my story.

"What!" you say. "I thought the spectre of magic and superstition had been definitely buried. I thought this was going to be a scientific tale!"

Yes, it is going to be scientific, to be sure. And yet that element of the supernatural cropped up at the start of the story, and I must confess that it sneaks in at the tail end also. At least, it appears that way to me, as I recollect the last awful day at the *Blue Water.*

CHAPTER XVII

The Storm

MORLEY completed his work on the fifth day following the incident of the osmium salt. During that period I made myself as useful as possible, performing routine operations in the analyses which the chemist conducted, and attending to other elementary chores.

It had early become apparent that, in order to facilitate the operation of extraction, we must locate our workshop closer to the source of our raw material—the *Blue Water*. Accordingly we brought most of our equipment down the beach, and established ourselves directly at the edge of the lake. A crude shelter was constructed on this spot, more to give us protection from the blazing sun than anything else. Our tent and sleeping quarters remained at the original point where we had first made camp a short distance up the beach.

After working over almost two hundred gallons of *Blue Water*, employing several different methods of precipitation and extraction, Morley finally had a collection of bright gold nuggets weighing about five pounds. Moreover he had a goodly accumulation of notes and figures, covering analyses, concentrations, yields, conditions of extraction, and all other pertinent experimental data that would be helpful in future plans of exploitation. In addition we got together a collection of maps, charts and photographs, that would be of great service to us later. Throughout this period we made almost daily trips aboard our improvised vessel which we found to be an entirely dependable means of navigation over our blue lake. The meteorological gods were extraordinarily good to us, for, throughout this period we had matchless weather—blazing hot during the day, of course, and almost freezing cold at night—but clear, dry, perfect weather.

On the sixth day we decided that our work, at least for the present, was completed. Accordingly we began making arrangements to hit the trail back to a waiting world—a world as yet unconscious of the revolutionizing news that was soon to be broken. We could have stayed on for weeks, playing with our fascinating find, but necessity urged us to decamp—the food and water situation was becoming extremely acute. In addition our horses had consumed the last vestige of grass from the open space just off the beach, and barely a handful of our original supply of fodder remained. No—we had lingered enough—it was now time to go.

Morley carefully dismantled his improvised chemical laboratory down by the water's edge, while I assisted him in sorting over the various supplies and pieces of apparatus. It was really a surprise to me, in looking over the assorted collection of material, how we ever had been able to cart all this stuff the distance that we did. Yet it was all precious baggage, the electrical instrument, microscope, chemical reagents, flasks, containers—articles that had served to spell success for this curious adventure of ours.

Morley sorted over the individual items, directing me to place this instrument here—that jar over in yonder spot with the rest of the mineral salts—these things aside here for more careful wrapping—those articles into the cardboard container there. Our canoe, half drawn up on the beach, served as a convenient repository for a number of the more precious items—those things of a fragile nature which we wanted out of the way for the moment, so as to avoid having them damaged in the confusion that necessarily attended breaking camp. There we placed the delicate electrical and optical instruments, the quartz container of *osmium supernitrate*, the little bag containing our prized yield of gold and one or two other articles about the care and safety of which we were particularly solicitous.

"Really," laughed Morley, standing with arms akimbo, surveying the little groups of assorted material scattered about us, "this reminds me of moving day. Isn't it queer how things just insist on accumulating—slowly, piece by piece, until when it's time to pack up and clear out, it looks as though you have twice as much stuff as when you came? Well—we shall have to find room somewhere for all this truck—I'd hate to leave any of it behind."

Most certainly we were not going to leave any of it behind—even if we had to use our four horses to carry the baggage, while we trudged alongside. I assured my companion that we would manage to pack it together somehow—I had had too much experience in cross-country traveling, prospecting, camping and general roughing it, to be stumped by a problem like the packing of baggage.

It is for a very good reason that I go into such elaborate detail regarding the incidents associated with our breaking camp. The facts are vividly engraved on my memory—so sharp and poignant is the mental picture that it will certainly remain with me to my dying day.

I remember that Morley was engaged at the moment in crowding into a duffle-bag those articles of his equipment which could stand rougher usage. I had gone up to our tent in order to fetch down a couple of blankets and some cord to pack together the more breakable articles.

Suddenly I heard a sharp call from my friend down at the water's edge. I poked my head out of the tent inquiringly. One glance was sufficient to tell me the story. I needed no further word from Morley. Even his excited gesture upward was superfluous. A dark mass of angry clouds, sweeping up from where the confining walls of our beach tapered together to a sharp apex, had obscured almost half the sky and was rushing relentlessly toward us. In our industrious occupation of sorting and packing, neither of us had been aware of the swift approach of the storm.

Even as we stood transfixed for a brief instant, an ominous puff of wind swirled down upon the triangular clearing from the direction of the cleft in the tumbled mass of rock behind us. A low angry growl then reached our ear—a rolling, reverberating rumble like the enraged muttering of a caged animal. For only a few agonized seconds we stood petrified at our respective posts. Then we were galvanized into violent action.

"Quick, Duncan!" my friend called shrilly to me—"The tent! The horses!—I'll look after this stuff down here!" He immediately fell to gathering together the scattered array of apparatus and equipment. I needed no urging. A moment's hasty inspection satisfied me that the tent moorings were secure. Then I dashed headlong up the slight incline toward the decimated little pasture where our horses were tethered. As I ran, my mind reverted to that other occasion, several weeks ago, when we had been routed out at midnight by just such a sudden clash of the elements as was now in store for us. During those fleeting seconds, I could not help recall the abject terror of our guide at the time, his superstitious hallucinations about the Blue Demon, sitting astride one of our horses, and his subsequent desertion. I do not know why that train of thoughts persisted so tenaciously!

After twining the tethering ropes round and round one of the stunted trees near by, and fastening them tightly, I dashed back in the direction of the *Blue Water*, my mind still hanging firmly on the thrilling events of that night of the desert storm. By this time almost the entire sky was covered with tumbling, billowing masses of ugly blackness, blotting out the sun, and sending an eerie chill into the atmosphere. The first puff of wind had been followed by a weird calm, but now another gust came down the beach, a sighing whining spurt of air, with a portent and a threat of what was to follow. A large drop struck my bare head as I ran—and then another. Soon they began to pelt the rocky ground with a faint hissing sound. Dull flashes illuminated the jumbled froth of clouds above my head, while the reverberations of the ever-nearing thunder came louder and more distinct. There was no denying it—we were in for a grand little storm.

By the time I was halfway down to the shore, the wind had risen sharply and was whipping a cloud of acrid dust about me. It was then that I became aware of the sudden change that had taken place in the *Blue Water.* From a peaceful, almost rippleless sheet of indigo blue, the surface of the lake had altered in a few seconds so as to present now a scene of utmost turmoil and confusion. As the scurrying wind squalls struck, the water was churned up into a chaos of dark blue waves, each fringed with a bluish white froth. In a wild disorderly procession these miniature billows dashed over each other as they hurled themselves into a tinted spray against the coarse beach. All of this I absorbed in the few seconds that it took me to reach the water's edge.

"Morley!—Morley!—where are you?" I shouted hoarsely, as I made the shore. So rapidly had the storm clouds accumulated over the entire sky, and so hideously opaque were they, that, in that brief interval, the entire scene had been plunged into a darkness approaching that of midnight. Now and then the blackness was punctuated by a feeble glow as a flash of distant lightning burst through the clouds. During my precipitous dash down to the water I had observed the shadowy form of my companion moving rapidly about the scene, gathering, covering, protecting. And now the impenetrable blackness of night had suddenly blotted him from my view.

I ran up and down the beach, stumbling over various odds and ends of baggage, calling my friend's name hoarsely. Then, above the ever mounting noise of the storm, I thought I heard a sound like a confused splashing of a paddle. And now, sure enough, I missed the canoe that had been lying there, half out of the water, during the course of our preparations. I cupped my hands and hallooed as loudly as I could out over the surging blue waters. An answering shout, almost drowned in the roar of the elements, but unmistakable nevertheless, revealed the whereabouts of Morley.

Of all the insane notions! I thought . . . to be out there paddling about in the teeth of this storm! What earthly business had he out in that egg-shell of a canoe at this moment?

Then I saw it all in a flash—those few scientific instruments of his which he had placed in the canoe while sorting over our equipment—the bag of gold nuggets! The first sweep of the angry waves had probably torn the boat loose from its resting place, half on land and half in the water. Morley had doubtlessly jumped in to rescue his precious articles—the canoe had been driven by the wind and waves out into deep water—and now he must be engaged in a violent struggle to make his way back to land. Inwardly I cursed the foolhardiness of the man—to risk his life for a paltry microscope, one or two electric meters, a bottle of some rare chemical—or even the handful of gold ingots, with a whole lake full of gold practically at our command! Had he gone off his mind under the strain of the last few weeks?

This was no time for conjecture or theorizing. My friend was obviously in a precarious situation. By this time the rain was coming down in slanting sheets of liquid density; the howling wind blew with terrific force. The crash of thunder became louder, each roaring explosion following precipitately on the heels of the other, until the very heavens seemed to be bursting with noise. Each vivid streak of lightning tore through the atmosphere, throwing a momentary glare that was instantly swallowed up again by the interminable blackness. It was during one of these brilliant flashes that I caught a fleeting glimpse of the tiny craft out on the turbulent *Blue Water.* For only an instant did the illumination last, but in that split second I could make out a figure hunched up in the canoe, struggling desperately with the paddles. At that moment the vessel appeared to be about a hundred yards from shore and being carried swiftly by the wind and waves off toward the left in an oblique direction. At the next lightning flash Morley was again visible, this time a good distance farther out than before.

Something had to be done in a great hurry—but what? To dash bodily into the mad fury of the *Blue Water* and attempt to swim out to him was the sheerest folly. I doubted if even the most powerful swimmer could long survive in such a raging turmoil. Then it suddenly flashed on my mind as I crouched there on the bank in the violent tempest of wind and water, that the canoe was heading directly for the rocky promontory that jutted out near by like a long wavering finger some distance into the lake. In an instant I was dashing along the shore toward the elongated peninsula. And yet I had no clear idea as to what good I might accomplish there—all I knew was that my friend was in danger and that I was the only one who could possibly render him any assistance.

Slipping, stumbling, crawling, drenched to the skin, cruelly bruised by encounters with sharp rocks, I made my way as swiftly as I could, and scrambled out upon the stony ridge. At intervals, as the inky blackness was ripped asunder for a trembling instant by a lightning flash, the canoe became visible, swirling crazily in the blue inferno, being carried now less rapidly, but heading in the same general direction as before. These intermittent observations revealed to me that its steady drift would carry the boat to a point near the tip of the rocky finger. As fast as the irregular, slippery surface would permit me, I made my way to the spot where the vessel appeared certain to strike. For I was fully expectant that it would be dashed upon the irregular face of the peninsula. Just how I could be of any assistance in saving Morley from serious injury—or worse—I did not or could not for the moment comprehend. My thoughts were too confused to permit any adequate planning for the emergency that now presented itself.

Relentlessly the frail vessel was being driven upon the rocks. Each succeeding flash of lightning revealed in glaring outline the tiny canoe, with Morley putting up a manly, albeit a totally inadequate, struggle with his paddle. Once or twice I saw his blanched face turned appealingly toward the shore. I shouted to him with all the strength that I could hurl into my voice, but I doubted if he heard me. The pounding of the waves, the infernal bellowing of the wind, and the deafening crashing and reverberating of the thunder simply overwhelmed my feeble vocal efforts.

CHAPTER XVIII

A Titanic Struggle

THEN a curious thing happened. By some unexplainable caprice of the storm, the wind suddenly shifted into another direction. I first became aware of it when a blinding splash of lightning disclosed the position of the canoe. To my great astonishment, it was no longer making for the spot at which I had stationed myself. Instead it had been swung around and was heading out on a course running parallel to the peninsula. I stumbled along the rocks out toward the tip of land, following the progress of the boat with grave apprehension. It no longer appeared to be in imminent danger of having itself plastered against the rough shore. But worse. According to all indications, he was about to be swept out into the very centre of this lashing fury that only a few minutes ago was a placid sheet of blue water.

Still stumbling in the pitchy blackness that sandwiched in the intermittent flashes of vivid lightning, I reached the very tip of the narrow arm of rock. When I next saw the canoe, I found that I had outstripped it—it was somewhat behind me, and much closer to the peninsula than before. Maybe the wind *will* carry it to the rocks, I thought. God help Morley if it does! But no! . . . another flash revealed it moving rapidly parallel to my position.

At this moment my madly confused thoughts suddenly crystallized themselves into a wild scheme for helping my comrade in distress. When next the craft became visible, one fleeting glance was sufficient to decide me on a course of action. It was foolhardy to the very extreme, but the stress of the occasion served to dispel any doubt or hesitation. Standing poised on the outermost rock of the peninsula, and elevated about ten feet above the savage confusion of blue waves and sapphire foam, I waited tensely for each stab of lightning to disclose the position of the canoe. I judged that its course would carry it to within about a dozen feet of my post, on its careening way out into deep water. One more glare of light showed me the vessel directly below and in front of me. The moment had come!

I think that Morley saw me the very instant that I leaped. I know that I was aware of his upturned face, ghastly pale, with a startled look in his eyes, as I summoned every ounce of my strength in that one mighty jump.

I came down with a resounding smack on the surface of the water, my outstretched hands just barely gripping the gunwale of the canoe. My noble effort all but knocked the wind out of me; it came very near to capsizing the little boat and plunging Morley out into the boiling lake with me. What good I expected to accomplish by my mad manoeuvre I was unable at the moment to explain. This was no time for reason—it was a time for action—and act I did.

Morley's hands gripped my wrists, and he dragged me aboard before I had succeeded in swallowing very much of that bitter colloid gold liquid.

"You confounded fool!" shouted the chemist in my ear, above the deafening roar of the storm. "What made you do it? . . . Now we're both lost! . . . Headed out straight for the middle of the *Blue Water!* . . ."

A brief glance at the shore confirmed his terse observation. The gap between it and the boat was rapidly widening.

"Nothing else I could do!" I returned hoarsely at the top of my voice. "Two are better than one! . . . Where is the other paddle? . . . Maybe we can make it!"

Morley shook his dripping head dismally. But he passed me a second paddle and together we fell to work, pitting our feeble efforts against the violent power of wind and wave. At every succeeding flash we gauged the distance anxiously. With unconcealed dismay we noted that the wind and waves were sweeping us on relentlessly—further and further from land. It seemed futile to continue the struggle, but we dared not capitulate to the fate that appeared inevitable.

Talking was well-nigh out of the question in the mighty confusion of sound all about us. Occasionally we shouted suggestions or encouragements to each other. For the most part, however, we carried on what little communication was necessary by pertinent signs and motions. From time to time one of us had to relinquish his work and turn to bailing out the colloid water that we shipped incessantly. Our cupped palms were the only means at our disposal, and very inadequate implements they were. Soon there was so much water in the bottom that one or the other of us was almost constantly engaged in heaving it overboard. The gold colloid came in just as fast as we could bail. Every mountainous wave let loose an avalanche of water upon us that threatened each moment to swamp us completely.

Things were getting to look extremely desperate. Although the great mass of black clouds that had banked up overhead was now becoming less opaque, and we were beginning to see a little more of our immediate surroundings, the fury of the storm about us remained unabated—if anything, it became worse. The torrential rain came down in almost solid sheets; the violent wind swept it into our faces and nearly blinded us. We were wet through and through, like a couple of half-drowned rats. Bailing, rowing, struggling, we must have made a pitiful figure out there on the turbulent *Blue Water.*

Then our fortunes suddenly changed. After sweeping the canoe around the point of the peninsula and, from what we could judge, a considerable distance out toward the middle of the lake, the wind veered around in a most mysterious fashion. In the dim half light that now enshrouded us we could see the boat was heading in a new direction. No! . . . it couldn't be! . . . By God, yes . . . it *was* true! . . . *We were heading back toward the beach.*

Now it was unmistakable! The ever-increasing light showed that the wind was plunging us in a direction that would land the canoe on that narrow section of beach that stretched between the peninsula and the beginning of the encircling cliff. It was a mad gamble. Would we make it, or come to grief against the rock wall? Morley and I exchanged shouts of exultation as we bent once more to our work, lending whatever assistance our slight efforts could contribute to the task of keeping our spinning boat going in the general direction of safety. Although the rain and the tumult were both undiminished in intensity, the light was becoming increasingly stronger. I could distinctly see the small strip of beach which for us now meant salvation.

Our jubilation was short-lived. In a very few moments it became painfully evident to us that the canoe was not going to strike the beach at all. Another slight shift in the direction of the wind brought us about and headed us full tilt toward the towering wall of rock that ran without a break around almost the complete perimeter of the *Blue Water.* Morley and I, nearly exhausted though we now were, put all our remaining strength into an effort to veer the boat about and head it in the direction of the open space. There at least we had a fighting chance of coming through alive,—but as for that massive stone barricade, it spelled but one thing to us—sudden and utter destruction.

In spite of our valiant struggles, we were drawing inexorably nearer the swift doom that faced us. "My God, Duncan!" exclaimed Morley. "It's no use!—we're going to smash up!—Can't prevent it!——" He dropped his paddle with a gesture of despair. The little boat was now bobbing and twisting like a cork, at the complete mercy of the raging tempest.

I expostulated vehemently. It is doubtful if he heard me above the tumult. I caught a determined gleam in his eyes as he bent down into the bottom of the boat and rummaged under the seat. In wonder I sat holding the gunwale with both hands, staring at my comrade. In the semi-darkness he located the object of his hunt. He straightened up, clasping it tightly under his arm, as though it were the most priceless thing on earth. I recognized it with a gasp of astonishment—the felt-protected jar of *osmium supernitrate!*

"Save it! . . . protect it! . . ." Morley's words became incoherent in the chaos of the storm. For a moment I thought he had gone stark mad. At this vital juncture, when our fate hung in the dreadful balance, this man was babbling about rescuing a handful of some unheard of chemical—as though there was nothing in the wide world of greater value—not even our very lives!

He half rose from his seat, the parcel clutched in the crook of his arm, a wild stare in his eyes.

"The osmium salt—it must be saved! . . . Nothing else matters now! . . ." Each word was ripped from his lips by the gale, and flung violently into the storm. I could do no more than sit aghast. "Colloid gold . . . precipitation . . . electrified ions . . . all will be lost . . . *osmium supernitrate . . . !*" His words became unintelligible amid the blast and crash of the elements.

Now there was no longer any doubt in my mind—my friend's entire mental structure had collapsed like a cardboard house. I was sitting there in that tiny eggshell, facing a raving lunatic—and both of us being carried to certain destruction against the cliff!

I shot a hasty glance in the direction in which the canoe was being carried. Less than fifty yards separated us from the perpendicular redoubt. Only a short distance to the left was the open beach. If only I could work the boat the barest bit that way, we might land just free of that ugly rock face. I seized my paddle again and immediately dropped it. Morley was standing—or rather crouching—his body inclined forward. I sensed his intention—the madman was going to jump into that furious caldron of blue destruction. I pounced upon him. He shook me off, shouting at me the same incoherent phrases as before—"gold colloid—charged positive ions—divalent—trivalent—precipitation." It was heartbreaking. I wheeled swiftly. Twenty feet separated us from a towering mass of rock. It loomed up over our heads like a leering monster that was going to devour us. And to be sure it was.

I had only a second or two in order to tense myself for the impending crash. Then I felt myself lifted off my feet and hurled violently forward. The boat must have struck a submerged rock, for I heard a ripping and rending of bark as I sailed through the air. Blindly, desperately, I wriggled and twisted, trying instinctively to minimize the shock. I felt, rather than saw, Morley's body spinning through space close by. Then I struck the water and was overwhelmed by an avalanche of blue waves churning and boiling at the foot of the cliff.

I know that I shouted incoherently once or twice, and began lashing out with my arms and legs in an effort to get away from the rock wall. The gold colloid liquid got into my eyes, nose, throat. It smarted frightfully; the copious mouthfuls that I swallowed nauseated me beyond description. I knew that Morley struck the water close to me, for I caught a fleeting glimpse of him floundering about as helplessly as I. It was apparent that both of us were of the same mind, to attempt to negotiate the small distance that separated us from our only hope of salvation—the bit of open beach where the rocks terminated.

We had taken barely a dozen strokes, when a tremendous wave came tearing in, lifted us both to a giddy height, poised us for a breathless instant and then brought us violently down again. A muffled crash of glass came to my ears . . . glass? . . . Why, to be sure, I thought vaguely, that must be Morley's confounded jar of *osmium supernitrate*—the thing he was holding on to so tenaciously—the fool—the blathering . . . !

At the next instant I was hurled with crushing violence against something hard and unyielding. The side of my head struck with a resounding smack. . . I was treated to a blazing display of planets, satellites, stars, constellations and assorted galaxies. A numbing insensibility enveloped me. I felt myself being turned head over heels in a vast void. I made a strong effort to fight off the blanket of unconsciousness that was slowly, relentlessly overpowering me. I believe that I continued to strike out with all my remaining strength, lashing blindly in every direction. Then a chilling, terrifying coldness overpowered me. This was the end! . . . I ceased struggling . . . yielded to the paralyzing grip of the coma . . . then blackness and oblivion! . . .

CHAPTER XIX

That Fatal Matter of Valence

THE bright sun shining squarely into my eyes, and a dull pain on the left side of my head were the first sensations that I experienced. I turned my head with great difficulty, so as to avoid the sharp glare. Also I brought my hand up to my aching head to touch something soft—a bandage. I felt that I was lying on some hard irregular surface—my right hand at my side felt about timidly, and clutched a handful of sharp pebbles and rock fragments. With a great deal of difficulty I raised my throbbing head and looked about me. I was lying on the beach, a short distance from the edge of the water. Not three feet from me, on one of the larger rocks, sat Morley, his chin buried in his cupped palms, in an attitude of extreme disconsolation. He was gazing mournfully out upon the now placid lake. As he heard me stirring, he turned his head in my direction.

"Storm's over," I observed weakly, with a feeble attempt at a smile.

"So it is," returned Morley glumly, "—and everything else, too," he added with deep significance in his tone.

He rose from his seat and came over to kneel by my side. "How are you feeling, Duncan," he inquired solicitously. "That was a mighty whack you fetched on your head—an ugly scalp wound—and you certainly shipped plenty of that confounded *Blue Water* before I could get you ashore."

I thanked him mutely.

"Yes," continued my companion in a vague detached fashion, "that was a pretty fight that I had to put up to keep my hold on you and haul you and myself up on dry land once more. It's lucky that we were so near this bit of beach—maybe a hundred feet—I don't know what would have become of both of us if it had been much more than that—I was almost ready to give it up myself when my feet scraped against the bottom—and what a welcome sensation that was."

I observed that my clothes were partly dry, as were Morley's. The hot sun beating down on us was rapidly evaporating the water from them.

"It's only about an hour since we came out of the lake," continued the chemist abstractedly. "Look at the sky—not a cloud—just as clear as we have always known it to be here. That storm disappeared just as rapidly as it came up. Within five minutes after we got to shore the rain had stopped, the wind had died down, and the sun was beginning to break through—almost supernatural, I call it."

Slowly my dazed condition was leaving me. I was beginning to think more clearly and connectedly. The ache in my head was still pretty violent, but I felt myself getting stronger momentarily. I rose to a half-sitting position, while Morley adjusted several rolled up blankets—wet to be sure, but welcome nevertheless—to support my back.

"Tell me, Morley," I asked in a weak, trembling voice—I was far from being over the shock of my recent experience—"tell me—what did you mean by saying everything is over?"

"Yes, my friend," returned Morley, tersely, "everything is over—ended—lost—finished—whatever you choose to call it—everything!"

"You mean our supplies and equipment?" I looked about on the beach, and across to the other stretch of open space beyond the promontory, where we had pitched our camp; except for a few bedraggled odds and ends, our goods had been pretty thoroughly swept away. "You mean the instruments—the microscope and chemicals—the bag of gold nuggets——"

A scene flashed momentarily across my consciousness—a scene of Morley crouching in the spinning canoe, the stare of a madman in his eyes, with a small parcel under his arm—"you mean the *osmium supernitrate?*"

"All of that—and more," he returned grimly. "The colloid gold!—the blue of the *Blue Water!*"

Mystified, I turned my head painfully to look out upon the lake. A gasp escaped my throat. I could scarcely believe my eyes.

The water was as clear as crystal!

A placid sheet of colorless, transparent liquid stretched in almost rippleless smoothness to the encircling cliffs that walled it in. The blue, the sapphire, the indigo, the ultramarine—gone! Just a plain, ordinary lake of plain ordinary water!

I rubbed my eyes diligently. Perhaps I was still unconscious—dreaming. No, this was no vision—no hallucination. It was cold fact—the *Blue Water* was no longer *blue.*

I turned upon Morley a glance that burned with inquiry. For a moment he appeared to be slightly amused at my very evident discomfiture and apprehension. Then he lapsed into his former lugubrious mood.

"We might as well pack and go home," was his funereal comment. "There's nothing left for us to do. The gold's gone—beyond recall, or recovery, I suspect."

"But, but—" I sputtered in amazement. "*There* one minute and *gone* the next! Why confound it all——"

"You see, Duncan," interrupted Morley with a touch of sadness, "it was that blamed *'osmium supernitrate'*—I'll never stop cursing the blind foolishness that made me lose sight of its possibilities—until it was too late. I know that you are completely at sea about the entire matter, so I'll explain it to you."

Again I became a lecture class of one, propped up there on the open beach against a roll of wet blankets, with a mass of bandage around my throbbing head, listening to a chemical dissertation delivered by a disheveled, haggard-looking figure, draped in soggy, clinging garments.

"It all depends on valence, Duncan—*valence!*" Where had I heard that before, I pondered. "You remember, don't you, my demonstration of how a colloid may be precipitated out of that state by the addition of a salt—an electrolyte—I think I used sodium chloride—ordinary salt. Now the valence of the positive ion, sodium, is *one.* If I were to use calcium chloride, $CaCl_2$, where the positive ion, calcium, has *two* charges, the amount of colloid precipitated by a given quantity of salt would be, not *twice*, but roughly *seventy times* as much as the univalent compound. And not only that but the precipitation takes place more rapidly, and is more nearly complete. Now with a *trivalent* ion like aluminum, the effect would be even more startling. Here, Duncan, I've figured it out——" He brought forth a sheet of damp paper torn hastily from a notebook, and consulted it. "——approximately 560 *times* the power of a univalent ion."

He gazed ruefully at his figures on the paper and twirled his pencil with an aimless motion. In an abstract manner his gaze swept the glassy sheet of water before us. I waited patiently for my friend to resume.

"To think," he mused, half aloud, tapping his lip lightly with the end of his pencil—"to think that I had it right in my grasp—and let it slip out—forever!"

"Ah, yes!" Morley caught himself with a wry little smile. "Let me continue." I let him.

"You remember, don't you, Duncan," he went on, "what I told you way back—how long ago it seems!—when we were engaged in hunting for osmium ores. You recall how I explained my idea about osmium with its valence of eight, and the method I was working on for boosting that valence up indefinitely—and how I had reached the valence of *sixteen*—*'osmium supernitrate,'* with the metallic ion carrying sixteen positive charges. . . ."

As my companion unfolded his explanation a light was beginning to dawn on me—a ray of comprehension that grew brighter and more revealing as he continued. Ah!—now I could see the insidious connection between our present (now *just past*) work on colloid gold, and the curious synthetic osmium compound.

"Look at these figures, my dear Duncan—I worked them out while you were lying there recovering from that encounter with the rock." He held the damp scrap of paper so that I could see it clearly. I confess I understood nothing of the complex calculations. "The factor in the formula is 8.3—we raise that to the sixteenth power—since the valence of the new osmium ion is sixteen, result: about 700 *quadrillion!* That, Duncan, represents the precipitating strength of *osmium supernitrate.* One microscopic crystal of this salt would be sufficient to release the gold from a thousand cubic feet of colloid liquid—my two-pound quantity, enough to tackle a lakeful of colloid gold—and there you have the entire story—the storm—the jar of osmium compound—in the canoe—my sudden realization of the tremendous precipitating power locked up in this apparently harmless salt—my attempt to recover the jar from the vessel—your sudden arrival—drifting—the crash—and it's all over!"

Morley kicked a pebble meditatively and chewed the end of his pencil. When I found words to express my emotions, I inquired:

"But how—what—I can't see it—Just because a two-pound quantity of your osmium compound was accidentally spilled over in this corner of the lake, how should that affect the entire volume of *Blue Water?*"

"Don't forget the storm," smiled Morley blandly, "the wind, the waves, the strong currents and counter-currents, the churning and mixing and eddying of the lake water. I venture to say that, inside of thirty minutes from the breaking of the jar every colloid gold particle had given up its electric charge to the osmium 'super-ions' and been thrown out of the colloid state."

"Surely," I insisted, "the gold isn't lost. It's merely down at the bottom of the lake, waiting to be removed—isn't it now?"

"It certainly is—a hundred thousand tons of it—way down at the bottom that we haven't been able to fathom. I made a little exploring trip along the shore a short while ago, just before you came to, and I can see that there is very little for us to salvage. Come, Duncan, I think you're strong enough now to take a little turn around with me. You'll see for yourself."

With my friend's assistance I clambered to my feet, to find myself, much to my surprise, steadier than I had anticipated. We made our way down the gentle slope to the edge of the lake. I marveled at the limpid clarity of the water. Every rock and pebble could be discerned below the surface.

"Do you see the thin blue deposit on the bottom?" Morley scraped up a little of it. "That's some of the electrolytically precipitated gold. Only a mere film of sludge that has stuck to these rocks. The turmoil of the water, together with the steep slope of the bottom from all sides of the lake, served to bring virtually the entire mass of gold mud toward the center out yonder—and there's where the whole pile of wealth is now resting."

CHAPTER XX

A Vanished Fortune

WE trudged out to the tip of the rock promontory from which I had made my futile leap only a short time ago. Aside from that same thin sediment of blue on the bottom, there was no evidence of the former wealth of colloid gold.

From this point we made our way over to the end of the beach where the sheer cliff rose to dizzy heights and dropped down below the surface in a perpendicular descent. Here too, other than a faint blue streak along the water on the face of the rock, there was not a vestige of the colloid metal. The water at this spot looked faintly greenish owing to the depth.

The destruction was evidently complete. From a clear blue sky, literally speaking, had come this violent atmospheric disturbance, and at one stroke wiped out the slow but incessant work of ages. We fell to discussing the matter more fully as we tramped back to the site of our former encampment. Morley, suffering though he was under the stress of a terrible disappointment, frankly conceded that our work had now reached a definite *impasse*. An examination of the lake shore and surrounding cliffs had demonstrated practically none of the precipitated gold visible there. Our earlier depth soundings about the lake had revealed to us the steep underwater slope from all sides toward an unfathomable bottom in the centre. There, according to Morley's belief, lay the tremendous wealth of gold, in the form of a vast deposit of blue mud.

I protested that the outlook was not so hopeless after all—that the gold could still be reclaimed. Even though we ourselves were helpless in attempting such a task, it would be an easy matter, nevertheless, for us to return to civilization, and come back to this locality at some future time, fully prepared with men, equipment, and means to reap this stupendous harvest of wealth.

Strange to say, Morley shook his head gloomily at that notion. I remonstrated. The going had been hard to be sure—we had encountered many obstacles along the way—but we had found the *Blue Water* once, and we could find it again, with not nearly as much difficulty as at first. The reclamation of the gold offered no problems that could be regarded as insuperable, I thought—and I did not hesitate to say so.

It was then that I became aware of the underlying reasons for my friend's sudden change of heart. I was shocked at the realization that a cold and reasoning scientist like Morley should experience so startling a reversal of preconceived notions.

Morley had actually become a prey to the superstition of the *Blue Water!* Of all the unusual developments, this was certainly the most phenomenal. Morley the chemist—the shrewd, logical, calculating man of science, was now bowing meekly to a myth, a legend, a fairy tale as preposterous and unscientific as could be found among the folklore of a primitive race.

I strongly suspected that possibly there *was* a slight mental aberration which had developed in him as a result of his recent terrible experience. The great shock of the storm, the loss of his precious osmium salt, the fact that he had actually had at his command, for a fleeting instant, a surprisingly simple and easy method of recovering the metal from the colloid lake, only to have it literally whipped from his hand, and finally the climactic loss of all the vast wealth of gold beyond any possible recovery—all of this kaleidoscopic whirl of dramatic episodes, compressed into the space of an hour or two, had probably conspired to effect a slight mental twist. Gloomy, morose, given to half-aloud musings, Morley now presented a far different picture than he did as the smartly alert, sagacious, optimistic scientist that I had always known.

His mind was irrevocably set. Our best plan of action lay in immediate evacuation of our position and return to civilization. I was humbly acquiescent. Morley had been the brains and driving force of this entire expedition. And now that the motive power had suffered a definite collapse, there was nothing left to do but to decamp as quickly as possible.

Hastily we collected whatever remnants of our equipment had been spared by the storm. A pitifully meagre collection it was, when we had gathered it all together and tied it up into compact bundles. The recent disturbance had also played havoc with our horses. Two of them had broken their tetherings and had run wild. One had evidently dashed off from the little clearing into the wilderness of rocky passageways to the south. There was no use hunting for the animal—in all probability he was now beyond recovery. The second horse we found near the edge of the open space, lying where he had stumbled and fallen. A swift examination revealed a broken leg and the animal had to be destroyed. We divided our much reduced baggage between the remaining two animals, mounted them, and after a last lingering sweep of the eye across the strange little lake, nestling there majestically in its setting of towering mountain cliffs, we turned our backs to the *Blue Water* and passed through the cleft in the rock wall through which we had caught our first glimpse of the gold lake.

Our trip back was remarkably easy and uneventful. In contrast with the bewildering and discouraging succession of annoyances and mishaps on the journey up, our return was surprisingly smooth going. Morley remarked with great significance that we were *coming from* the *Blue Water*, not *going toward* it. The Indian fairy tale had obviously made no slight impression on my scientific friend.

We never went back to the *Blue Water*. When we got to where we could relate our vivid experiences, it all seemed and sounded like a nightmare. Morley had not been able to bring back a single drop of the colloid gold liquid. All he had was a tiny quantity of the blue sediment scraped from the rocks on our last trip of investigation after the storm. The copious notes that he had taken concerning analyses, yields, measurements, processes—all had been swept away and destroyed. The instruments were gone. There was scarcely a tangible evidence left of our weeks of adventuring.

Well, perhaps it is all for the best. Perhaps the colossal mass of gold sludge resting there in the plumbless depths of the *Blue Water* is better off where it is than out in the light of day. Sometimes Morley and I get to speculating as to what the results would be, were a hundred thousand tons of gold suddenly to be dumped upon an unsuspecting world. We agree between ourselves that the effect on the financial structures of the earth would be disastrous. Maybe it is a case of "sour grapes," but at such times we actually experience a feeling of immense relief that matters turned out the way they did.

THE END

Starvation in Space

By Earle H. Morris

HERE is an interplanetary story that will surely please even those who are a little tired of the tales of remarkable journeys to other planets and of scientists and their buddies who arrive just in time to avert certain world destruction by the vicious, warring inhabitants of enemy planets. It is quite possible, after all, that, granted there are living, intelligent beings on worlds outside of ours, these beings might visit us eventually on a friendly mission—or that, if we perfect a machine that will take us safely past our heaviside layer and across the void, we might return with tales of marvels and peace. More and more interplanetary travel is talked of—not as an idle, fantastic dream—but as a possible reality of the future—how far in the future, or how near, no one can say now.

CHAPTER I

THE summer of 1955 was well into the month of July and the beautiful rolling plains of North Dakota lay sweltering under the brazen disk of a blazing sun that slowly moved through a cloudless sky. From the open windows of the Communications Room, set high up in the Administration Building of the Interstellar Engineering Corporation's magnificent air-port, the fields of golden grain stretched undulating far to the north and east. To the south and west the breaks of the Coteau led down to where the Missouri River curved and twisted on its way to join the Mississippi in its march to the sea.

Even a close observer would not have discovered any activity at any point in all of the four hundred acres of landscaped hilltop that comprised the air-port. Not even the breath of a breeze stirred the folds of the massive flag that hung from the flag-pole surmounting the main structure of the group of buildings that clustered at the edge of the hill overlooking the valley.

Nestled in the valley between the river and the high land, where perched the air-port, the modern city of Bismarck reflected the heat, so that the valley, prairie and city seemed drowned in the light shimmer. The insects alone showed signs of life, for all around the grasshoppers droned their song of life into the mid-afternoon air. Everything seemed steeped in languorous inactivity.

BONG—BONG—BONG!

The great clock surmounting the air-port slowly intoned the hour of three. As the first stroke of its great gong reverberated out across the prairie and through the waiting rooms of the air-port, the red caps snapped out of their mid-afternoon lethargy and raced through the concourse towards the landing stage, where the sun-bright hull of the Martian Express was rapidly settling into its cradle. At the last stroke of the gong a heavy door section in the side of the express slid smoothly back and the passengers, chatting and laughing, passed rapidly out and into the offices of the customs inspector. The Martian Express was on time to the second.

The casual passenger, first arriving at the air-port, would be greatly impressed by the strange architectural treatment of the buildings, both inside and out. Strange to the eyes and minds of earth beings but perfectly normal to the officers and crew of the newly arrived Martian Express. The completeness and luxury of the furnishings in the waiting rooms and concourse were a constant source of delight to all who had occasion to use them. The engineer, inspecting the part, would be impressed with the compact and economical ground layout that combined facilities for passenger and freight traffic, repair and new construction activities. He would also note with approval the facilities for the conservation of both time and travel in going from one part of the layout to another in handling either freight or passengers.

The Administration Building, which dominated the hilltop, combined its administration facilities with a hotel of a hundred rooms. Its six stories of beautiful, though strange, architecture was surmounted by a ten-million-candlepower flashing beacon that was an aerial guide-post to the surrounding countryside. The interior decorations of this magnificent building were the despair of the commercial decorator. The walls and ceilings of the public rooms were decorated by the use of paintings. These were of such vividness and technical mastery that these rooms became the study for many an advanced student of art.

The freight structure which lay to the north of the Administration Building, and adjacent to the main state highway, had its outer walls treated in the same strange architecture, though not so ornamental as the Administration Building. Beauty, however, had not been sacrificed for utility. This structure, which combined an enormous grain elevator with facilities for handling package freight, had been voted the most beautiful freight terminal on earth by many noted architects. The repair shops, that lay to the eastern edge of the port, were contained in a long, squat two-story structure, each side of which faced a concrete and steel landing cradle that could accommodate either passenger or freight ships. The roof of this structure carried an immense 500-foot arrow pointing to true north, that showed a dazzling orange-yellow light on clear days but on cloudy days and at night glowed forth in strong blue-green.

The four hundred acres comprising the air-port were so beautifully landscaped that it was evident that a master hand had been responsible for the artistic arrangement of the many strange, as well as native, shrubs and trees. This planting had not interfered with the use of the main field for airplane runways, although the use of planes needing a long runway was rapidly becoming obsolete. The grounds were a famed beauty spot and drew many visitors daily who marveled at the strange flowers and shrubs.

The owner of this air-port, and of the various interstellar lines radiating therefrom, was carefully watching the activity attendant upon the arrival of the space ship from a window set high up in the Administration Building. When the express was safely in the cradle, he turned to the man at the chief dispatcher's desk and said, "Jim, Old Hoss, a lot of water has passed down the Missouri since I first stumbled into this interstellar activity!"

James Barnes, chief dispatcher for the Interstellar Engineering Corporation, glanced up from his instrument board and the report sheet he was filling out, and, observing that the "Old Man" was in a mellow mood, quickly decided to himself that now was the time to get the history of the meteoric rise of this man and his company. "What's that?" he countered.

"Well, Jim, you will have to admit that we of this Earth have advanced a long, long way in aerial transportation since 1930," replied the "Old Man," "and I am very happy to have had my share in producing that change, although the start was not due to any special knowledge or ability on my part."

"Say, J. R.," Jim countered, "quit spoofing me, for I know and the world knows that you and you alone are responsible for the introduction of the two primary discoveries that have made this aerial navigation possible. The youngest and greenest freshman in the smallest technical school knows that, if it had not been for the discovery in 1935 by John Roberts, eminent engineer (meaning yourself), of a method to neutralize, in part or in whole, the so-called gravitational effect, that we would still be trying to keep in the air by speed. If you had not discovered and applied your Repulsive Ray to aerial navigation we would still be using, or trying to use, some type of internal combustion motive power with all of its drawbacks, and if——."

"Now, Jim, spare the adjectives and keep your eyes on that bank of signal lights just a little bit. Isn't that light tuned to the wave of the Lunar freight line?" "About time to report its position, isn't it?" interposed the "Old Man." Conversation lagged until ship positions were received, recorded and Earth's weather conditions transmitted to the ship signaling on the Lunar wave.

John Roberts then stretched himself out comfortably in a large leather upholstered chair and said, "Jim, the story of these so-called discoveries, that I am credited with, is a strange one. For years I have wanted to tell some one the story of the strange happenings that preceded these so-called discoveries of mine. I have hesitated to do so because I knew that few, if any, would believe me, but now that you have opened the way for me, I think that I would feel greatly relieved if I could unburden myself, so I am going to get the story off my chest. It's an hour before that Lunar freighter docks and I want to be here when it does, in order to look at the sample of new metal it is carrying.

CHAPTER II

"WAY back when, as good stories begin, or to be exact, in the spring of 1935, I was engaged by the state in research work on the clay deposits of North Dakota. The meager laboratory that the state furnished us at that time was housed in the old brick structure, built in 1883, that stood just to the east of that magnificent pile of limestone and steel that lies in the valley just before you. I had a job that was rapidly becoming so routine that more and more I found time hanging heavily on my hands.

"During these free hours I began delving into studies dealing with our universe and the probability of human life, as we knew it, upon the known planets of our solar system. I became interested in thought transference or mental telepathy, read everything that was published and also spent much time in independent research along that line. I read all of the so-called bizarre stories dealing with interstellar travel or exploration and built up in my own mind the ideal type of space ship and of its propulsion and capabilities.

"In the early part of April, 1935, I was spending more time than usual in study and thought on this subject; so much so, that thought waves traveling outward had evidently set up a distinct aura of influence around my study. One night my line of thought was suddenly interrupted by what seemed to be a distinct command for me to come outside to the back of the house. Startled, I looked around. Seeing no one, I laid it to my imagination, and continued with my studies. But a few moments later the command came to me again. 'Come outside to the back of the house, *AT ONCE.*' I then realized the command had not been spoken. I was alone in the house at the time, but I had apparently been impressed on my mind by another mentality of compelling force.

"Thought transference, or telepathy, had been written about and demonstrated in feeble ways for some years, but, although I had tried my hand at it and read much concerning its possibilities, I had never received so distinct an impression as this command. You may be sure that I lost no time in getting outside into the night and plunged headlong up the stairs from my study, then flinging aside the back door I stepped outside. As I did so, I voluntarily *ducked,* for there, hovering in the air, not ten feet above me, was the gleaming silver body of what I took to be a mighty dirigible—the body of the ship stretching away to the west.

"I moved away to the south to a point where I could get a good view of this strange visitor and then it was forced upon me just how strange the craft really was. A gleaming silver shell four hundred feet long with an aspect ratio of one to eight hovered there before me.

The impression given was of great weight and strength. (I discovered later that my supposition of weight was wrong.) Two great air-foil fins jutted out horizontally about 20 feet on each side of the prow and gradually merged into the shell, while at the stern four similar fins about one hundred feet long were spaced equally around the shell.

"The only other breaks in the contour of the shell were, first, one small projection fitted with thick, heavy, lenticular windows that I took to be in the navigator's room and, second, twelve round open ports, or holes, distributed one in the prow, one in the stern and five ranged on each side of the shell near the eight points of circumference. From six of these open ports streamed, what appeared to be, bars of light and my first impression, which later proved correct, was that these light bars were supporting my visitor immobile just above me. Just above the front horizontal fins and below and to the front of the navigator's window were two illumined devices that I was informed later were the *Cote Armor* of the owner of the ship. Not a sound came forth as I stood there in the moonlight admiring the speedy lines of the strange craft, pondering on the type of metal of which it was constructed and of the people with which it was manned.

"As I stood there, I again felt the presence of a compelling personality and distinctly received the question, 'Well, how do you like it?' I looked around to find the speaker but found there was no one near. I realized then that it had been another telepathic communication, so looking toward the navigator's projection and through the thick lenses, I saw the head and shoulders of a uniformed man who smiled at me when he caught my eye. I returned his greeting with a smile and nod and in my feeble way projected a thought of welcome. The man smiled at my effort and I caught the thought, 'Keep it up, for I am sure that for the present, at least, all communication between us will have to be by telepathy.' Following this came an invitation to enter the ship and when I nodded my acceptance a large door section in the side of the ship, for such I will call it, slid silently back and a light metal ladder was thrust to the ground, the top being held steady by two members of the crew. These men looked weak and undernourished, but one could see that they had been magnificent specimens of manhood.

"For a second I hesitated at the foot of the ladder, a feeling of disaster was in the air, but the thought waves reassured me, and, still gazing at these men I clambered up the ladder and into the ship.

"When I reached the floor of the corridor, at the top of the ladder, I was met by the same personage whom I had seen gazing out of the port of the navigation room. As he stepped forward smiling, words broke from his lips, strikingly beautiful, but of a language strange to our Earth. Smiling, I reached out and shook his hand warmly, saying, 'Welcome to Earth and especially to my home.'

"His smile never faded but my mind caught his projected thought. 'Pardon my use of speech, for I realized before now that our spoken language could not be the same. Welcome to my ship." He then asked me to accompany him to his quarters, to which I mentally agreed, so he linked his arm through mine and led me through a gleaming corridor, up a wonderfully wrought metal staircase into the control room of the ship.

"As he stepped toward me, I noticed the extreme paleness of his features, he really appeared to be ill with some sickness and his body was thin to emaciation. His handclasp was weak and I could feel the thinness of the arm that was linked in mine and he seemed hardly able to walk. The man seemed more fit for a hospital than to be escorting me through this strange ship, and again the feeling of disaster stole over me.

"The inside of the ship was even more intriguing than the outside. The partitions and everything were constructed of a strange metal that I judged was light but exceedingly strong. The corridor we traversed was about eight feet in height and of a width that three men could easily walk abreast. The main dining salon, from which the staircase sprang, had a head room of at least fifteen feet with the stairwell extending to the top of the hull.

"Everything gleamed in its show of cleanliness. Nowhere did I see a sign of dirt or disorder to mar the perfection of this marvelous craft. Another thing that impressed me was the very uniform illumination with a complete absence of light fixtures or glare. Whence the light came, I could not discover, but its quality made it very easy on the eyes. The floors of the corridors were roughened for better foothold and appeared to be of metal, yet not the slightest ring was produced by our shoes.

"In our passage through the corridor a door, not fully latched, swung partly open and as I passed I glanced inside. It was the hospital room, for two men were working over another stretched out on a glistening metal table in the center of the room. They looked as if they were starving, but as I hesitated from a feeling of pity, my escort urged me onward, telling me not to mind what I saw. Again and for the third time, that strange feeling of disaster passed over me as we came to the door at the head of the staircase.

CHAPTER III

"WE entered the control room without knocking and, as we did so, six middle-aged men who had been seated at a large table in the middle of the room, arose slowly to their feet and bowing low said a few words in that soft, silvery language that I was destined to hear so much of during the next few months.

"The appearance of the faces of these men can hardly be described, for if ever I had seen starvation stamped on anyone, these men and my escort were on the verge of starvation. Their strength was nearly gone, yet they kept up outward appearances and smiled.

"My escort waved their salutations aside (for such they were, I found out later), and then spoke rapidly to them. Turning to me, and using thought waves only, he indicated a gray-haired gentleman and introduced him as Duke Zeol, Foreign Minister of Helio. The Duke, in acknowledging the introduction, startled me greatly by the use of my full name. My amazement amused them.

"'Helio,' I asked the Duke, 'where is it?' 'Helio,' he told me, was the name of the country dominating the planet fourth out from the sun, and that the capital city of this country was also called Helio.

"In quick succession I was introduced to Duke Soran, Minister of Agriculture; Duke Yon, Minister of Transportation; Baron Morz, Assistant Chief of the Department of Engineering, and Baron Yosti, Assistant Chief of the Department of Communications.

"After acknowledging these introductions I turned to my escort and asked, 'Now may I have the honor of knowing your name and rank?' My escort turned to Duke Zeol, spoke a few words, and that worthy gentleman, bowing low, intoned mentally, "I have the honor to present Prince Dravi, heir apparent to the throne of Helio.' I started to salute him, as did the others, but he stopped me with a gesture and I caught his comment, 'We will not expect that of you, my friend, for we know you earthlings do not go in for formal show.

Let that be for my people, in whom it has been inbred for thousands of years.'

"I discovered I was getting pretty good at telepathy when my next projected thought was caught by all those present. I asked them if there was anything concerning myself that they desired to know. The Prince replied that they knew my name, my place in the state government, my standing in the community, my engineering record, and that it was due to these investigations that they desired to enlist my aid.

"As I recalled my astronomy, here were visitors from space who had covered, approximately, 40,000,000 miles in a 400-foot ship and then were calmly telling me that they knew all about me and were asking my assistance.

"Well, Jim, I was speechless for a moment. Finally, I managed to assure them that I would consider it an honor to be permitted to help in whatever capacity I was able.

"Just at this point a man I had noticed in the hospital room as we passed up the corridor staggered into the room where we were standing. He spoke rapidly to the Prince, who groaned and turned his face away. I felt disaster in the air, so I turned to the Prince and asked him mentally what was wrong. He shook his head, but the Doctor (for that's what he was) caught my thought and flashed back, 'The ship's commander is dying for lack of water and food. He has refused his daily portion of food lately, so that the crew would have enough strength to work the ship safely to your planet.'

"'Water and food! Yes, indeed, I can help you,' I replied. Turning to the Prince, I asked, 'Why did you not ask for what you so sorely needed as soon as you met me by the door?' Without waiting for his reply, I grasped the Doctor by the arm and hustled him down the stairs and along the corridor, asking him where the water tanks were and how they were loaded. The Doctor caught my thought and became galvanized into activity.

"Hope seemed to strengthen him and he called several of the crew, who likewise caught the vibration of hope in the Doctor's voice, and came to help as best they could, though they were tottering on their feet. The Doctor indicated a projecting valve in the side wall of the hull of the ship and said, 'There they are filled.' Quickly estimating the distance to my house water supply, I asked them to stand by and I slipped quickly down the ladder, caught up the garden hose and carried it up the ladder to the filling valve, ran down again to turn on the water supply and soon a cold stream of pure water was gushing into their tanks. The Doctor looked at the water stream, bent and tasted it, then, taking a golden folding cup from his pocket, filled it and had one of the crew swallow half of it. Another member of the crew drank the remaining half. He then sent them to round up the rest of the crew. The Doctor then filled the cup again and entered the hospital room, first telling me to let the men have only a half cup of water each, until he returned.

"As the men were hurrying to line up in the corridor, the Prince and his father's Ministers arrived on the scene. The men held back, but the Prince insisted that they drink first and they quickly received their allotted amount. Some demurred at the small amount, but the Prince insisted they follow the orders of the Doctor and the grumbling ceased. The Prince and his followers had their drink and by then the Doctor had returned. He agreed to let them each have a full cup. It was the first time they had any water in more than five days.

"Posting a guard over the hose, the Prince went into the hospital room to see his friend, the Commander of the ship. Taking advantage of his absence, I cornered the Doctor and said, 'It looks to me like this ship's crew is slowly starving for lack of food, too—how about it?' Beckoning, he led me down another corridor and into a large room fitted with bins and shelves that were practically empty. For ten days, he told me, all of them had been on eighth rations and that for ten days before that on half rations and that the rations even before that were hardly sufficient to maintain life.

"Then I fully understood the peculiar feeling that had struck me three times within the past half hour. My heart went out to those hardy men and I quickly asked what was the basic source of their food. The Doctor stated that they all needed food of a cereal base, if it were possible to get it quickly. I asked if he could go with me, and, getting his affirmative reply, we left word that we would return shortly. We descended to the ground. I took my automobile out of the garage and we drove rapidly to a grocery store. I routed the grocer out of bed and we were soon inside his store, with the Doctor picking his food from pictured label or by my help. In the meantime, I had told my friend the grocer part of the plight of these men and he agreed to load his truck with foodstuffs and follow us right over—the Doctor had found a supply, just then, of concentrated beef extract and insisted on returning to the ship and preparing it for the Prince and his crew. I helped the grocer load his truck, then drove rapidly back to the ship. The truck was right behind us and soon the foodstuff was going into the ship's galley, though slowly, on the shoulders of a hope-rejuvenated crew.

"Leaving the Doctor to his labors of supervising the cook, I asked for the Prince and was told that he was waiting for me in the control room. As I entered they all arose and, the Prince, with tears streaming from his eyes, thanked me in the name of Helio for the energetic measures I had just taken. I noticed that a new brightness had crept into all of their eyes and was glad that I had taken matters into my own hands. The Doctor came in at this point carrying a pot of boiling water, a member of the crew carried seven cups and a tray of graham biscuits, and soon the Prince and his fellows were enjoying their first unrestricted food in over twenty days—a steaming cup of bouillon.

"It did my heart good to see the change that cup of bouillon wrought in my guests. Soon the empty cups were removed and the Prince indicated that he would like to tell me the reason for their coming to Earth and asking for my assistance.

"IT seems that thousands of years ago the people inhabiting the planet Mars had been very active agriculturally and had lived upon the products of their farms. The atmosphere surrounding the planet had been much like that now surrounding the Earth and the moisture was sufficient to produce abundant food. Their year had a length of 687 Earth days, which was divided into four seasons of approximately 172 days each. Normally their soil produced two crops a year.

"Years followed years and gradually it was noted that as demands were made upon their atmosphere by their developing chemical age that the moisture content of the atmosphere began to decrease. Though the decrease was gradual, it became more and more noticeable that it was becoming increasingly hard to raise grain.

"By this time their chemical age was in full tide and the development of synthetic foods by their chemists had reached a point where it was thought that cereal foods would not be needed any longer. Agriculture soon, from sheer non-use, became practically a dead science.

"At first no ill effects were noted upon the human organism. Soon all food prescribed was synthetic and grain fields were a curiosity to be found only in remote valleys of the planet. Gradually, after many, many years, certain functional disorders began to be noted in the bodies of those men doing hard manual labor and these disorders were finally traced to the synthetic foods.

"For a long time this fact was kept from the general populace, while an intensive campaign was waged to increase the growing of cereal. The supply in remote valleys was collected and the greatest care taken with the seed to insure successful germination and crops. The chemists were forbidden by Imperial Decree to remove any more of the constituent elements from the atmosphere and the underground waters of Mars were prospected for further supplies.

"The non-use of agriculture, however, had depleted the available supply of seed and long before grain could be available for general unrestricted use it was seen that it would become necessary to accelerate the rate at which synthetic foods were to be removed from the diet of the workers. This would bring on an acute shortage of food and being forewarned that this shortage was approaching, this expedition to earth had been organized in an attempt to stave it off.

"Due to delays on the trip, the Prince was even now afraid lest he be too late in getting new seed and food back to Helio.

"For many centuries the astronomers and scientists of Helio had been studying the planetary system of which they were a part. As their science developed, so did the instruments in use, so that now for several hundred years, it had been possible to make photographs of the things of earth and its people through their Refractorscope. The complete surface of the earth had been photographed and minutely analyzed as to its growing things. The clarity of the atmosphere, over that section we know as the Dakotas, led their astronomers to concentrate their studies there and it was decided to try and make a contact in that area. Small grains in large quantities had been discovered in studying the photographs taken with their refractorscope which utilized, in addition to the usual lenses, a beam of extra high frequency rays as an additional transmitting medium. This machine had been the joint development of the astronomers and the engineers of the Department of Engineering and Communications.

"In accordance with the decision to try a first contact in the Dakotas, this ship of Prince Dravi had been provisioned as best they could and dispatched. After being delayed ten days on the way by an accident to the machinery, generating the Repulsive Ray that had nearly spelled disaster, here they were, forerunners of a fleet of empty freighters even now on the way.

"You may be sure, Jim, that I was very much interested in this recital, but I wondered just where I fitted into the picture, so I came right out and asked the Prince just why I was selected to hear his recital of conditions.

"It seems that they had been hovering just at the outer limit of Earth's atmosphere, delayed by an accident to their machinery, which made it impossible to break through our 'Heaviside Layer.' They had been there for five days, unable to muster sufficient power to break through, the while the mechanics worked feverishly, starvation facing all of them. During this time, by the use of their ship's refractorscope, they had been able to watch spring seeding operations in every detail and had determined what the nature of the seed was. It was then decided to establish contact in the middle of this spring seeding acreage. But *HOW* and *WHERE?*

"The second night of their delay above the Heaviside Layer, the Prince was sitting before the ship's powerful Telepathic Receptor amusing himself by slowly moving its field back and forth over the city that had been located below them. He was making a last shift of the field before retiring for the sleeping time when he picked up my thoughts on interstellar transportation. To find anyone pondering on that subject at midnight struck his fancy, so leaving the Receptor focused, he switched on the ship's Refractorscope and soon had focused my image upon its screen. He sat thus for some time, studying me.

"Calling Duke Zeol and Baron Morz from their beds, they together studied me through their instruments and agreed to check up on me further as I finally went to bed. It was agreed that if further investigation corroborated their first impression, they would try to make their contact through me when and if they ever got through the *layer*.

"For the next few days they had followed me through my daily contacts, listened in on a speech I made before an engineering society and had finally decided that I would do just as well as anyone they could pick. They also believed that my engineering education would be an excellent foundation upon which to work and a great asset in getting things done quickly and economically.

"The engines had finally been repaired and they had broken through the Heaviside Layer about an hour before they had called me and I had responded to their crisis and need.

"This recital of my chance selection sort of 'set me back a bit,' but they took the sting away by assuring me that their personal contact this night had more than borne out their original estimate of my fitness.

"The Prince then asked me, in the name of Helio, and of all of starving Mars, if I would accept the appointment as their sole agent on Earth — first, to procure grain and cereal food supplies so urgently needed and, secondly, to establish trade and commerce between the two planets.

CHAPTER IV

"I WAS very much impressed by my visitors, their strange space flyer and their even stranger story, so I assented to be their agent if we could reach an agreement as to compensation for my services. I was frank with them that my financial condition necessitated regular and remunerative employment in order to feed and clothe my family. Upon my assent to their request, they each insisted on shaking me by the hand and mentally thanking me.

"The Prince then spoke to Baron Yosti, who excused himself and left the room. Soon from the next room a low pitched hum arose and, upon my mental inquiry, the Prince informed me that Yosti was communicating the news to Helio. The first and most difficult part of their mission had been accomplished—contact had been made with Earth's people.

"The Prince then turned to me and asked that I outline what I thought would be satisfactory remuneration for my services. I thought a few moments and then made a statement as to salary and its payment, which was accepted in its entirety. The Prince's comment in accepting was to the effect that I had underestimated the work that would be required of me and that he accepted my terms as minimum only. What maximum was to be was not stated, but I felt sure that whatever it was, it would be satisfactory to me.

"Discussions were then entered into as to just what my visitors had in mind, specifically, as to permanent construction on Earth and minimum shipping requirements. The Prince concisely stated them as follows: First—construction of an air-port to handle such ships as would be dispatched, both freight and passenger.

Second—construction of storage facilities that would enable a freighter to be loaded with grain in three days.

"Out of this we reached an informal agreement that specifically set forth the various undertakings by each of us. This agreement was written down by Duke Zeol for permanent record in Helio, but I am sorry to state that a memorandum I made has long since been lost. I remember what it contained pretty accurately, however. It provided: First—a minimum yearly salary for myself to be paid annually in advance; second—the creation of a working fund for payment of wages and materials purchased; third—the construction of certain air-port facilities to handle both freight and passenger ships, out of funds to be provided by Helio; fourth—the equipping of this air-port by and with machinery that would come from Helio; fifth—the installation of adequate communication facilities for planet to planet communication; sixth—the establishing of such an organization as I felt necessary to insure a continuous supply of transportable foods at the air-port. This supply to be available in such kinds and quantities as Helio might request.

"This being settled, I told the Prince that next in order I believed that I should be given an opportunity to see just what their plans were for the air-port and its facilities, that I had a growing conviction that I had, unwittingly, taken on quite a sizeable contract.

"At this point, Baron Morz picked up a small watch-case transmitter from the table, spoke rapidly into it and in a short time a young man entered the room and handed him a roll of paper prints. The Prince indicated that they be given to me for study and, as it was past midnight, that I be permitted to get some sleep. That discussion could be had next evening. The conference soon broke up, but as I was being escorted to the outside of the ship, I remembered that my work next day only kept me employed until noon. I then suggested that the ship return for me shortly after the noon hour and that we spend the afternoon on the plans.

"They all were pleased at the additional time I had available. The Prince suggested that, in so much as these preliminaries should be kept to ourselves, I walk to the top of the hill to the north of my house, face up wind and wait for the ship. Upon seeing me they would lower the ship, protected by their light bending apparatus, and place a ladder beside me. I would then be spoken to and I could feel my way upward into the ship. The ship would then be raised to a point behind the clouds, or at least out of the way of air traffic. We could then proceed with our discussions. I agreed and descended the ladder, then, with a slight hiss and a momentary increase in the brightness of the supporting light beams, the ship lifted rapidly into the night.

"For some time I stood there lost in reverie, my eyes fixed in space, thinking of the amazing proposition that had just been offered me. It seemed to be as of a fantastic dream.

"Sleep was an impossibility, especially after I had unrolled the prints handed to me by Baron Morz. In all of my engineering experience I had never seen such architectural artistry, structural strength, or pure beauty as was disclosed on that sheaf of prints. The detail was marvelous in its completeness, the details of each separate building or structure were bound together and surmounted by a marvelous isometric wash drawing of the completed structure.

"Everything in the way of facilities for the handling of package and bulk freight, that I knew of, were present in vastly improved form and many that I had never seen operated. You can see for yourself, Jim, the splendor of this administration and passenger terminal structure—its completeness to the smallest detail. Imagine, if you can, having such plans thurst upon you for approval—so many things detailed with which the engineering world of 1935 was totally unfamiliar.

I was soon lost in contemplation of the beauty of the many structures and especially in the large tinted wash drawing, showing the completed air-port. Adjectives fail me, Jim, but you daily see the concrete results of the plans spread out before me that night. Dimensions I could only approximate, for they were in the nomenclature of Helio, but I found out later that my approximations were correct.

"I finally fell asleep but the rising sun woke me to further study, then to work and, at noon, to the hill with the prints under my arm. The ladder was soon pressed against me, and in a few seconds I was again shaking hands with Prince Dravi and his father's Ministers. They seemed to have perked up quite a bit—no doubt due to the good food.

"When I reached the control room and looked out, the earth was thousands of feet below me and we were poised motionless in mid-air. We soon ranged ourselves around the conference table, the plans were spread, and I quickly told them that the lay-out so far exceeded our earthly knowledge that the only thing I could do was approve. The only drawback I saw was that dimensions were not such that I could understand them and that the plans would have to be redimensioned before I could place them before contractors. I told them that I had brought earthly foot standards with me. Baron Morz then had the standards transmitted to his chief draftsman, who was on the ship, with orders to place the correct earthly measurements on five sets of plans awaiting them.

"Duke Yon, Baron Morz and Baron Yosti then severally advised me that all of the machinery necessary to equip the air-port, as called for in the plans, was stored on the fleet of ten freighters that could be expected in about thirty days. The Prince suggested that, if possible, he would like to have these freighters loaded and on their return trip within a week of their arrival. I replied that the question of finances for materials and labor would be the limiting and primary consideration, but if they were willing to forego strict efficiency in the spending of funds, that, undoubtedly the freighters could be filled within a few days of their arrival. The machinery could be covered temporarily in wooden shacks, for I knew the buildings could not be constructed in thirty days by any contracting organization in the United States. The Prince waved efficiency aside in favor of speed, for he feared for his people in Helio, as the radio reports were of a very disquieting nature.

"The Prince and Duke Zeol then took me into a room opening off of the control room. There they showed me stack after stack of gold bars, weighing about fifty pounds each, I guessed. There were also several sealed metal boxes about one foot by two feet by one foot in size that they assured me contained bar platinum.. Believe me, Jim, it was hard to realize the immensity of the fortune piled there before me. The Prince assured me that part or all of it would be used to complete the facilities planned and to the purchasing of the food products so urgently needed in Helio.

"After I had recovered from the shock, I intimated that we had better pick out a site for the air-port so that I could start things moving.' Duke Yon replied that a site had been picked out, so we went to the windows, the ship was lowered and the Duke showed me this hill-top. A micro-photograph had been taken, from which the chief draftsman had made a lay-out plan that was given to me as a basis for land purchase. Jim, the original topography of this hill was sure the antithesis of its condition now. I was not sure it was a good selection, pointing out the time it would take to level it, but the Prince replied that they would take care of that job for me just as soon as the land had been secured, for they desired a high and dry site for the air-port.

"These discussions were necessarily slow as the telepathic medium had to be used entirely, but, as the sun went down, all the details were finally clear in my mind and I was ready to start the ball rolling. As I was leaving, Baron Yosti presented me with a telepathic projector. This device fitted tight over the head and ears and was to be used to communicate with the ship when I needed help or to report progress. The Prince and Duke Zeol both urged the utmost speed and as I was put down at my back door, several men carried down into my study twenty of the gold bars from the treasure room.

CHAPTER V

"DINNER was about to be served when I returned, but dinner had no appeal for me with all that treasure to be cared for. I called the cashier of the bank with which I did business, over the telephone, and made arrangements with him to place the bars in the vault and to convert the bullion for crediting to my account. After seeing the bars, he agreed to advance one hundred thousand dollars against the bullion for immediate use. A real estate dealer friend of mine was next on my calling list and among his listings we were lucky enough to find the particular piece of land that I wanted. The price asked was fair and we closed the deal at once. The deed was to be passed Monday, if my attorney approved the abstract.

"Early Sunday I called upon several building contractors in our vicinity but they 'threw up their hands' at the size of the project upon which I wanted them to bid. I then telephoned the largest building contractor in the state, two hundred miles away, asking if he would be interested. He said he would be and we made an appointment for one-half hour later at his home.

"Slipping on my telepathic projector, I called the ship and asked the Prince to take me to my conference. Twenty-five minutes later I was set down at my destination. This contractor also demurred at the size of the job, but indicated that he would like to bid upon a part of the work. His estimated time of completion was too slow to suit my necessities, so I bid him good day.

"By this time I was boiling over at prospective delays so I taxied to a hotel and put in a long distance telephone call to my old friend, Jack Norville, in Indianapolis, Indiana. I finally located him and asked if he had any job pressing that he could not drop. He assured me that if I had anything of any size *on the pan* he was my man. I then inquired if he would be at home in two hours and could see me, at which he laughed his sarcastic laugh and said, 'Sure, tomorrow night, for you can't get here sooner.' I insisted that I was in earnest, but he told me later that he thought that I was plumb crazy. The last thing I said to him was, 'You stay there and see.' I taxied back to the space ship and we kept the appointment. When Norville opened his door to my ring, he was utterly dumbfounded. It took several minutes of explanation on my part to convince him that I had not been playing tricks on him. The plans convinced him, all right, and after scrutinizing them for about five minutes, he pushed them aside, then looking at me he asked, 'When do we start and where?' Not another question.

"I had hoped to start right away but thought he might need Monday to clean up his work, so asked if he could be ready to begin Tuesday. 'Any time after seven o'clock Monday night suits me,' he replied. It was arranged that the ship would call for him Monday night, and as I bid him good-by, he was reaching for the telephone.

"Monday morning the land passed into my name. Arrangements were completed with my bank for the conversion of the gold bullion into United States currency as fast as was necessary. Discreet inquiries were instituted as to the speed at which the world market could absorb platinum without disturbing the prevailing market price.

"The financial question having been arranged, purchases for temporary construction offices were made and a few carpenters and laborers hired to report Tuesday morning. That night, at seven, we were hovering over Indianapolis and soon had Norville and his baggage aboard. A short time later we were again over the site of the new air-port.

"Baron Morz then asked us to step down to the ship's 'Z Ray' projection room in the keel. We followed him into a small room in the prow of the ship while he explained to me that he was going to grade or level off the air-port site. I tried to explain to Norville, for he was so amazed with it all that he seemed dazed. We watched every move. The ship was brought down to five hundred feet above what was to be the finished plane of the ground and a door section in the bottom of the ship was opened. The Baron then threw a switch beside a peculiar arrangement of tubes, that somewhat resembled the *Coolidge* tubes of our scientists and as we watched, a broad, pale yellow beam of light stabbed downward to meet the earth.

"The Baron explained that the yellow light was not the active agent of the beam but was superimposed upon the real agent in order that the operator could control its movements. Our eyes then turned earthward to watch the action of the Ray and we were astounded. Everything solid that the beam touched promptly disintegrated to a predetermined depth, in this case to the 500 ft. level beneath our ship.

"As we watched, fascinated by the sight, the ship slowly passed back and forth at the same height over the ground that had been purchased for the air-port. Minute by minute we saw a very rough and uneven hill-top converted into the level area that now contains this sumptuous layout. Four hours were needed to level the 400 acres and for once I found my friend, Norville, without his usual sarcastic comment of 'Well, that's not so hot.'

"Instead, he looked at me and smiled in his crooked fashion, and I knew what he was thinking, and he knew that I knew. Then he said, 'Well, old timer, you have given me a jolt and I am not myself just at present, but I must say that this outfit is the *hottest* thing I've ever run up against. I wouldn't take a million dollars for my privilege of being "in" on this job."

"Baron Morz, Norville and myself then spent about three hours upon the plans of the work that lay before us. Obscure points in the plans were explained by Baron Morz, as well as the technic of attaching the equipment that must be provided for, so that before we turned in for sleep that night, we were well able to rush things in the morning.

"Believe me, Jim, that 'Z Ray' in reconstructed portable form was certainly valuable for the excavation work necessary for foundations.

"Tuesday morning saw active construction work getting under way. Our telephone bill those first two days ran over a thousand dollars, but we located and bought essential construction machinery and had concrete materials on the road. Norville also wired for two of his best foremen from Indianapolis, so that by Thursday morning excavation work for the landing cradles was well under way and the forms for the concrete were being rapidly constructed.

"Two weeks after we started, we had all of the concrete work complete for two freighter cradles and had started on the foundations of the large grain elevator. In the meantime a two hundred thousand bushel temporary wooden elevator was being rapidly constructed where the freight terminal now stands. This temporary elevator was ready in slightly less than four weeks and my agents had grain going into its bins before it was completely under roof. One temporary wood cradle was also constructed to hold one of the coming freighters so that we could unload the machinery it carried and thereby be able to complete the regular cradles. Construction was then begun on the balance of these buildings at a more leisurely pace. However, when the first of the freighters arrived from outer space, we were ready for it and in shape to unload immediately. The ship was moved aside for cleaning and in rapid succession the other nine arrived and were treated likewise. By this time the equipment on the two permanent freighter cradles had been installed and three of these strange outer space ships were placed in position to load.

"Going back just a bit, Jim, to that memorable Sunday when we were returning from Indianapolis. I had dropped into a deep brown study of the contemplated program, reviewing in my mind the processes necessary to get things into train for smooth execution. The Prince and his ministers had made an attempt to carry on a conversation, but after a little while the talk languished, then died altogether. I was aroused by an explosive sigh and looking up I discovered that the Prince had evidently bridged millions of miles and was contemplating a grievous situation, if one could read his face rightly. Duke Zeol was evidently not thinking of anything hilarious either and I realized that something would have to be done to lift them out of their worried state.

"Turning to the Prince, I asked him if he was satisfied that the motors of his ship were in the best possible condition and he replied that the engineer had informed him that the ship was in perfect condition and he asked me just what I meant by my question. I replied that I had been thinking that he might like to load the ship to its limit and send it back to Helio with seed grain or foodstuffs as a promise of what was to come—that I could rent or lease a house near mine for them to reside in and that their bullion could be placed in a bank vault for safe keeping.

"Duke Zeol sprang to his feet with face alight as did Duke Soran, both speaking rapidly to the Prince, who still sat in his chair, his mind grappling with the idea. After a few moments he too arose and came to me, his attitude as well as his projected thought conveying to me his deep concern. I caught this question, 'You wouldn't build up a false hope in our hearts, would you?' I am sure the look I gave him was reassuring, for he smiled, and then I told him that if he desired to do as I suggested, I would get busy as soon as we reached home—that I believed we could load the ship to whatever capacity they deemed safe, inside of a week.

"The upshot of the matter was that I rented (for six months) a large house near mine and had it furnished by Tuesday night. The Prince and his followers then transferred their personal belongings from the ship and took up their residence on earth, at least temporarily. The Prince brought his chef and four servant guards with him. Wednesday morning I hired Peters to head my proposed Commissary Department so that as soon as the Prince decided just what he wanted to send back, we were ready to function.

"Wednesday night Duke Zeol handed me a memorandum that listed the size of each portion of the Silver Ship that could be given over to the carrying of freight, indicating thereon the weight that could be safely carried in each compartment or room. Peters and I spent a considerable part of Thursday morning going over the figures and calculating just how much of each commodity could be stored in each place. Thursday noon saw the Commissary Department very much in the market purchasing wheat, flour, shelled corn, barley, rice, etc. Some of the wheat was hauled from farmers in the surrounding territory by truck, while the balance of the foodstuffs were ordered shipped by train, so that early the following Monday, Peters had a steady stream of sacked material going into the ship.

"LATE Tuesday night the job was completed with 30,000 bushels of grain in place and the ship's master took it into the air to test out the computed balance. Returning to the ground, he reported that all was well and that he was ready to start. Prince Dravi then entered the communications room and had a long conversation with Helio, telling them for the first time that a small increment of foodstuffs was on the way and that, until the freighters arrived, he would be out of communication with them. Evidently the news was welcome, for the Prince was smiling when he descended to the ground again, the first whole-hearted smile he had given since I had met him.

"The Prince and his men then shook hands with the master of the ship, urging speed with caution, especially when going through the asteroids. The master entered the ship, a gong reverberated and the open door slid silently shut, then with a slight hiss from the lifting rays, the first step towards the staving off of starvation 40,000,000 miles away, had been taken. The ship lifted rapidly and soon was lost to sight. It was three weeks later that the freighters arrived and before communication was again established between the earth and Helio.

"As I told you, Jim, the Commissary Department was instituted to send back the Prince's own ship in record time and it had functioned perfectly from the beginning. Hard northern wheat had stocked the temporary elevator as soon as it was complete and thousands of bags of flour, barley, rice, rye and corn lay heaped under the temporary sheds. The crews of the ships, in accordance with a program of the Prince's physician, were rapidly taken from the synthetic food and placed upon a normal diet based upon agricultural products. The ships were stocked with this food for a complete round trip to Helio, and as fast as their holds were filled, they silently lifted into the air and departed. From that time until winter we had to fill and dispatch one of these 1000-foot freighters every week.

"Bullion was forthcoming from the Prince in a steady stream to provide the money for these purchases of food products as well as for the completion of this vast air-port. Along about August the temporary grain elevator was torn down and work was begun on the freight terminal. By that time this magnificent terminal and administration structure had been completed, with the exception of the passenger concourse, which was added later. The communication facilities you are now using were installed and we were beginning to build up the permanent operating force.

"Duke Yon had returned to Helio on the first of the freighters to be loaded. He had not been especially needed but promised to return some day and make a study of earth's transportation. He promised me that while he was away he would do some figuring on earth transportation routes, using data that I had supplied him with.

"The middle of July came and with it a radio report of the arrival in Helio of the first relief ship. The balance of the freighters arrived in rapid succession amid scenes of great rejoicing among the inhabitants and a very complimentary and thankful radiogram was received by Prince Dravi from his father. Construction work was rapidly approaching completion and Norville figured that by the first of September we would be able to write *finis* to our hectic labors. By the last week of August we were giving the final coats of paint to the interior rooms and the furnishings were being installed so that September first found us completely finished with our part of the contract. The gorgeous paintings had yet to be placed upon the walls by the artists of Helio.

"I was just getting up, about six o'clock I think, on the memorable morning of September first, when I was startled to hear the warning *standby siren* at the passenger cradles. I rushed to a window that overlooks the landing cradles and saw a long golden ship, bearing the device of Helio's King emblazoned on each side, settling into one of the cradles.

"You may be sure that I finished dressing in *nothing flat* and ran all the way to the landing field. Prince Dravi and the ministers had beaten me and were there before I was. As the door of the ship slid back, the Prince bounded inside and soon reappeared with his arm around the shoulders of a stalwart boy of about eighteen. Prince Dravi introduced him as his younger brother, Prince Kovo, who had made the trip at the request of King Dotar, to bring to earth certain things that had been requested. I suggested breakfast, so we trooped off to the restaurant.

"Breakfast out of the way, the Prince indicated that he would like to see Norville, his two foremen, Peters and myself in my office. When I had located these men, we returned to my office, to find the two Princes seated at my desk with Dukes Zeol and Soran standing at their right hand and with Barons Morz and Yosti standing at their left hand. The desk had been covered with an iridescent metallic purple cloth, emblazoned with the coat armor of Helio.

"Directly before Prince Dravi, upon the desk, was a small gleaming metal box of wonderful and intricate workmanship, bearing the device of Helio's King. The Prince, turning to me, asked for my help as interpreter, whereupon he opened the box before him and took therefrom four small thin metal books, the covers of which were beautifully engraved, and two platinum chains. Indicating that Norville was to step forward, he arose, and speaking rapidly in their beautiful language, asked Norville to accept, as a small token of gratitude from Helio's King, the platinum chain and book. The book contained, engraved and illumined upon its thin metal leaves, the Decree of King Dotar elevating Norville to the rank of a Duke of Helio. The platinum chain was the outward indication of that rank. I was then instructed to pay over to him $50,000. Norville was again without adequate speech, so I thanked the Prince for him instead.

"Peters was likewise invested with the book, the chain and the title of Baron of Helio. I was instructed to pay to him $25,000. The two foremen were each given a small metal book that contained, engraved upon its leaves, suitable words of gratitude from Helio's King for their part in rushing the air-port to completion. In addition, they were each given a note on me for $5,000.

"Turning to me, the Prince indicated that each workman who had remained on the job, from start to finish, was to be given $500 bonus. Also that each workman who had completed his work satisfactorily, even though he was needed but a short time, was to be given $100.

"Prince Dravi then indicated that the men could withdraw, but he asked me to remain. We sat around conversing, telepathically, on matters concerning the completion of the air-port and of its operation, the Prince indicating that he was very well satisfied. Suddenly he turned to me and said, 'Friend, I must be returning soon and I wish very very much that you would make the trip with me to Helio. My father has also sent an urgent invitation in the name of Helio. Will you come for a visit and meet my people?'"

CHAPTER VI

"YOU can believe me, Jim, that invitation was certainly unexpected, but considering it further, I found that I would also miss the Prince after all those hectic days in the service of his people. I tried to dissuade him from going right away, but he replied that his father had requested that he come soon, that affairs of state demanded his return.

"The outcome of the subsequent discussion was that I agreed to make the trip and that we would start in two weeks. In the meantime I suggested that we take the Golden Ship and cruise over the earth so that they could get a better idea of our life and civilization at close range.

"We started out and for two weeks I led them a merry chase—Washington, D. C., to meet the President; New York to look over Wall Street and the Stock Exchange; London; Glasgow; Stockholm; Berlin; Paris; Rome; Athens; Cairo; Calcutta; Pekin; Tokio; Manila; Alaska; Vancouver; Glacier and Yellowstone Parks; Denver; New Orleans; Chicago; we did them all.

"In some cities we landed to visit outstanding personalities or structures; some we just hovered over while we studied their people and works through the refractorscope and the telepathic receptor. The Alps were admired one morning on our hop to Rome and two days later we came down to one hundred feet above Mount Everest as we admired and explored the stern beauty of the Himalaya Mountains.

"The Prince was much interested in the Chinese and Japanese, and studied them closely, for he told me that folk tales of ancient Helio spoke of a yellow race, although they could not find trace of their existence.

"Alaska, with its rugged beauty and store of timber, was admired and envied by my guests. Their native timber was practically exhausted, even though strenuous efforts had been exerted to reforest the hills. Glacier and Yellowstone Parks were not so impressive, if one were to judge by the remarks made, though the geysers elicited much comment, and the Prince was so interested that he insisted on stopping for several hours to observe the geysers in action, while I was called upon to explain the phenomena.

"The trip around the world finally drew to an end and my guests had a good idea of the surface of this old earth and the types of people that inhabit it. When our trip was nearing its end, I noticed that my guests were beginning to show impatience to begin the homeward trip to Helio.

"The day before our scheduled departure, the crew was busy loading supplies. I, too, was busy going over the many small details of management of the air-port with Norville, who had volunteered to take care of the place until I returned. Departure day dawned clear and bright and promptly at seven o'clock we boarded the golden ship. The warning siren screamed into the air and then with a slight hiss, the ship lifted into the air and pointed its nose towards the spot in the void where Mars would be twenty-three days later.

"Interstellar navigation I found was quite an intricate science, where the master of the ship threading the void had to be quite a mathematician as well as an astronomer of parts. I found that the control room of the golden ship was equipped with astronomical instruments of the most extreme accuracy as well as many instruments new to me. These were in daily use by the officers in checking our path through space.

"As we neared the outer limits of Earth's atmosphere, the ship's master built up an internal gravitational field within the keel of the ship to make our movements within the ship independent of external attractive forces. The external anti-gravitational field was gradually and automatically increased towards the stern of the ship now pointing back towards the earth we had just quitted, while increased power was gradually put into the rear repulsive ray.

"Acceleration was very slow until we had passed through earth's atmosphere, for otherwise, too much heat would have been generated in the shell of the ship. It took us one hour to traverse the first two hundred miles; the second hour we crawled over 1000 miles; the third hour we hopped along for 7500 miles; the fourth saw us slip over a distance of 25,000 miles; the fifth hour saw us shoot the mark at 50,000 miles and from there outward our speed was kept fairly constant at 75,000 miles an hour.

"Speed in the void was a peculiar thing. It was not apparent to one in the ship unless he took the trouble to look through one of the telescopes that was trained on a distant star. The ship's speed then became apparent, although it appeared that the star shot forward with incredible speed; otherwise there was no more feeling of motion than if we had been resting in the concrete and steel cradle at the air-port.

"As the ship leaped away into cold dark space, our thermometer recording outside of the ship temperature, showed many degrees below zero. We often looked backward to watch the earth dwindle rapidly in size until at last it became as a green star. The other planets became more and more distinct while the view towards the Milky Way showed billions upon billions of stars of all magnitudes. Through and beyond we could distinctly see other planets of considerable size that had never been seen by earth's astronomers.

"Night and day were all the same and our lives were governed entirely by our chronometer. The interior of the ship was always flooded with light and due to the construction of the ship the temperature within was always kept at 70 degrees. We were in constant touch with Helio and our port here on earth. The time passed quickly, though I found time to do considerable studying under the ship's officers of interstellar navigation and, two or three times, towards the latter part of the trip, I stood a trick as navigator.

"On the way, I had an opportunity to study at close range the earth's moon, through the refractorscope. With the help of Baron Morz I took numerous microphotographs of the surface within the rims of the many so-called 'dead volcanoes.' These photographs, when studied later, gave rise to the belief that valuable minerals undoubtedly were there in commercial quantities if means could be devised to mine them. This possibility I later acted upon with the aid of my good friend, Baron Morz, interstellar engineer extraordinary, but that expedition is a story all its own.

"Day followed day in rapid succession, each filled with new wonders, to me, of the beauties to be observed in outer space. True the void had a cold dark aspect but with the refractorscope, the worlds beyond earth's ken presented an ever-changing panorama. Pictures taken on this trip, of the various galaxy of stars, were the object of lengthy learned discussion by the best of earth's astronomers, when they were shown the pictures later. New fields of thought and mathematics were opened up by the facts exposed in these photographs.

"Soon Mars began to leap towards us out of the void, and the hour came when we had to reverse the external gravitational field to slow up our headlong flight. Our deceleration was made in the reverse order from our acceleration and, on the afternoon of the twenty-third day from earth, we lowered the golden ship into a cradle on the grounds of the palace of King Dotar of Helio. We had made the passage in five hundred and forty-eight of earth's hours.

"When we were about two and one-half hours out from Helio we sighted a fleet of small fast space ships off to our left. Soon they sighted us and changed their course to come hurtling towards our ship. There they dipped, rolled, looped and performed other welcoming antics as they fell into our speed.

"Some of the ships had signs painted upon their sides and the Prince told me that they were signs of welcome. As we arrived within their atmosphere we were greeted by clouds of flyers, literally, who circled our ship as we dropped rapidly for the landing cradle. The public square was crowded with people who presented quite a bright and colorful spectacle in their gay colored clothes.

"We eased in to the cradle without the slightest jar and as we were coming out of the ship I noticed an elderly man and woman hurrying across the dark red grass towards us. The two princes ran to meet them and were embraced and made much over, then Prince Dravi turned and beckoned me to come.

"I had stopped at the door of the ship, watching the group. At Prince Dravi's request I started towards him. As I stepped beyond the influence of the gravitational field of the ship (which was still turned on), I shot up in the air about twenty feet. Luckily, I kept my balance and came down upright, but I certainly had a peculiar feeling for a second until I realized that the decreased gravitational effect of Mars was responsible for my undignified descent from the ship. My next step I tried to take easily, but again I floated into the air and would have sailed clear over the Prince, if he had not caught my clothes and pulled me down beside him. For a moment introductions were forgotten in his attempt to understand why I acted that way, but upon my explanation that it was the lessened gravitational effect, he burst out laughing and remarked that perhaps that was why he found it so difficult to walk on Earth.

"Prince Dravi then placed his arm across my shoulder and spoke rapidly to his father in that soft and beautiful language. King Dotar smiled, shook hands and then started to speak rapidly, but Prince Dravi stopped him and explained that as yet I knew little of their spoken language but that I could catch and understand projected thought. After that we got along very nicely, although conversation was slowed up considerably.

"Needless to say I was welcomed warmly by the King and his consort and, after a short time, we slowly walked into the palace. In this walk, both Prince Dravi and Prince Kovo kept tight hold of my arms to keep my feet on the grass and they remarked that I could easily be carried. I was assigned a suite of rooms just off those of Prince Dravi and it seemed that everybody tried his best to make me comfortable. I noticed this, however, that there were still traces of emaciation in the bodies of all those I met that night. There certainly must have been an emergency in their lives which had, partially at least, been alleviated by our shipments.

"The crowd in the public square kept up their clamor and shouting until finally Prince Dravi asked me to go with him to a balcony of the palace overlooking the square and show myself to the people so they would cease their noise. They all wanted to see the earthling who had made it possible to get food to them so quickly. Well, we certainly received a rousing, noisy welcome, and it was easy to see that Prince Dravi was close to the hearts of his people.

CHAPTER VII

"LIFE in the palace of King Dotar of Helio is one long, sweet dream. My quarters were fitted out with every device known to them that would contribute to downright solid comfort. So much so that at ten o'clock next morning I was still locked in the arms of Morpheus when Prince Kovo roused me, in order that I might have time to partake of some breakfast before going to the throne room at high noon.

Hustling through my toilet, the Prince and I hurried down to a small dining room where the servants vied with one another in serving me. One thing that struck me forcibly was the fact that we were served with manufactured cereals from Earth. The Prince remarked to me that the household preferred Earth's cereal foods to those manufactured in Helio. The importing of grain had revived some of their food industries and the people took kindly to their products.

"Eventually I was able to tear myself away from the table and we started for the throne room. In Helio's court I discovered that the administration of business was not conducted in the main part of the palace at all and it was necessary to walk quite a distance across the beautiful park to the administration structure. As we progressed nearer the building, I noticed a subdued murmur, as of many voices coming down wind. Entering through the outer row of columns, I had my first glimpse of Helio's court in all its splendor. The throne room covered, I should judge, an area of about 200 ft. by 400 ft., without a supporting column to break the floor, the ceiling being somewhat in the shape of a half ellipse. At one end a slightly raised dais supported the throne, which was draped about with purple, iridescent metallic hangings that were beautiful in the extreme. The walls and the ceiling were painted in that matchless manner that seemed to make things so lifelike that one expected the birds to sing and the people to step out of the wall.

"King Dotar and Queen Beta, in their gorgeous robes, were seated on the throne surrounded by their ministers, Prince Dravi and their two daughters. The balance of the room was completely packed with richly attired people, while those who could not gain entrance waited patiently in the large park that lay between the building and the main streets of Helio.

"Duke Zeol, as we entered, was standing a little to one side of the dais talking to the people in a voice that trembled with the intensity of his feelings. He was telling of their trip to Earth, of the troubles they had had and of their near failure when food and water practically gave out as they were delayed just above Earth's atmosphere.

"The speech was too rapid for me to catch more than the high points, and soon my mind was wandering after my eyes that had turned to revel in the beauties of the decorations. Prince Kovo brought me back to realities when he took me by the arm and started across the open space just in front of the dais.

"More oratory on the part of Duke Zeol and then Prince Dravi stepped forward and, taking my arm, formally presented me to the people as the earthling who was responsible for the rapid strides taken to save the people of Helio from starvation and ill health.

"Well, *the balloon went up* while the crowd cheered and yelled themselves hoarse. When quiet was again restored, King Dotar stepped forward and publicly thanked me for my efforts in cooperating with his son and ministers to relieve the very serious crisis in Helio and on Mars generally.

"At this point Duke Zeol stepped forward again, carrying a small but beautifully hand-wrought and chased platinum casket. Prince Dravi opened the top and took out a small gold-covered book which he handed to the King. King Dotar then presented me with the golden book, saying that as a small token of Helio's gratitude he presented me with a royal decree granting to me sole title to the complete air-port on Earth and as an extra personal gift from himself he gave me the golden ship that had brought me to Helio.

"The Prince next took from the casket a book of platinum, which was beautifully engraved and ornamented. This, too, he handed to his father, the King, who in turn again handed it to me. Then, taking a heavy platinum chain from around his own neck, he leaned forward and fastened it around mine, saying that in accordance with his desires and the wishes of Prince Dravi, he hereby adopted me as his son, with all the rights and privileges of a third son. He then called upon his nobles and his people to bear him witness in the things he had that day decreed.

"You can believe me, Jim, I was completely floored even with the gift of this air-port, which was an imperial gift, but to be adopted by Martian royalty was quite a jolt as well as an honor. I tried to express my gratitude, but they waved such expressions aside and then the governor of the city of Helio stepped forward in all of his resplendent robes of office (the people of Helio love pomp and ceremony) and presented me with the freedom of the city.

"Nothing would do then but that we go out onto a small balcony of the building that overlooked the park and be again presented to the people who had been unable to gain entrance to the throne room. The balance of the day and well into the night was given over to a monstrous reception.

"For the next few weeks I was very busy traveling from city to city, studying the life of these people, their development mechanically, chemically, industrially; observing their customs, art and transportation. Most always Prince Dravi accompanied me, but at times Duke Soran and Duke Yon piloted me about to inspect agricultural projects or air and surface craft factories and lines.

"In agriculture I found the people of Helio were much behind those of earth, for during the chemical age agriculture had practically vanished. Duke Soran, in his few months on earth, had made some studies of our power farming methods and had transported a few tractors, plows, combines, etc., to Helio, but he needed more.

"Industrially Helio was far ahead of earth. Paternalism as practiced on earth has generally been bad, but on Helio, with enlightened rulers and laws, paternalism has been very good for the people. Every able-bodied male above the age of twenty spends six hours a day in productive labor, either industrial or agricultural, the products being priced at cost plus a fair profit. The workers are paid on the basis of their individual production, thus allowing for increased efficiency and ambition. Prices are fixed every six months in each industry, there also being a final adjusting board over all that adjusts any inequality that might creep into such price fixing. All in all the workers in Helio seemed satisfied.

"Transportation in and over Helio interested me greatly as they were so far advanced over earth. At one time in their development of urban communities they had constructed subways, but now these subways had been converted or filled with tubes about three feet in diameter in which ran cars just large enough to hold a human body lying down. These cars had magnetic propulsion and selection of destination and traveled at a very high speed, once the car had entered the tube. The equipment of each car is so sensitive that a car cannot enter a tube at a station unless sufficient space or time intervened before the next came along. It was a wonderful development of the subway idea and I was informed that the tubes under the city of Helio alone carried over a half million passengers a day.

"Travel between different districts of Mars was by the use of large air liners such as had brought me to Helio, with the exception that they were not constructed to stand the cold of outer space nor its lack of atmosphere. These liners had been developed for high speed, comfort, safety and luxury. Freight was carried on the same type of ship, although at a much slower speed. There were myriads of small pleasure craft, all propelled by the same repellant ray that partially held the ships in the air while propelling them forward. The development and use of the gravity neutralizing field had been extensive and alone had made possible this type of traffic. Jim, I rode and operated and helped to construct every type of transportation medium used on Helio and learned much of the past development of each. Everything I learned there has been mighty useful in developing this company's operations here on earth.

"THE Minister of Education was very helpful in helping me to understand the present and past culture of the people of Helio who were representative of all Mars. The Prince was very much interested in the past literature of the Martians and had a magnificent library containing many first editions and autographed books of the early writers and poets. In the seclusion of this library I learned that the Martians had developed practically as did the earthlings thousands of years later.

"Their literature was full of legendary tales of enormous beasts, stone-age man, a flood and a dark age, from which they gradually emerged into a mechanical age. This mechanical age gave way to their chemical age, and I had been told as well as shown the results of this phase of their development.

"Their writers had been prolific and their prose had been clear and concise. Their poetry showed the influence of a deeply religious people, and those few of their most noted poems that were read to me were beautiful in their soft musical tongue.

"The art of the Martians as represented in the large museum in Helio was a revelation to me. All of the development that I was familiar with on earth was represented and even dating back long before our own art development on earth. Whole sections of rock containing pictographs of the early stone age had been cut out of their original resting places and transported to the museum. At a certain point in their national life their artists had discovered a method of painting upon burnished metal. This method, using a new chemical base paint, had the effect of making the subject stand out more lifelike than anything I had ever observed on earth. I would spend hours in contemplation of the beauties of Martian landscapes, of warriors equipped in all types of armor, of prehistoric animals in all of their fascinating gruesomeness, of magnificently attired men, women and children.

"From these contacts I gradually came to understand the Martians and especially the people of Helio. It seems that about two thousand years ago there had grown up on Mars three powerful peoples, two of them of practically equal development and culture, while the third, or blue men, were a cruel, crafty race lacking in all the finer instincts. These blue men inhabited a large desert and mountainous section lying towards the southern pole of Mars. For amusement these blue men made sudden raids into the agricultural districts of the other two peoples, ravaging their crops, stealing their cattle and killing the people. In this respect they resemble the lawless bands of thieving cutthroats that infest our earth desert regions.

"The two red races had finally settled their difficulties temporarily and made common war against the blue men. This war was long and bloody, lasting over two hundred years, before the final extermination of the blue race was accomplished. No quarter was given nor asked, and when victory had finally been won the two red races discovered that they had much in common and that many of the irritations of the past had lost their potency for hate.

"During the last campaign the King of Koland and his only two sons had fallen in battle, leaving just one heir, a daughter. There was much agitation leading toward placing this girl on the throne, while a distinct section of the people and their leaders urged a merging of interests with Helio. Helio's King had also fallen in battle, leaving one son. During the war the two "Courts" had met many times to plan campaigns and the young Prince of Helio had fallen in love with Koland's Princess.

"Shortly after the culmination of the war the new King of Helio formally asked the hand of this Princess in marriage. This act joined the two forces of Koland and the wedding was solemnized with all possible pomp. From that time to the present the military forces on the planet had dwindled to just the necessary mobile police force needed to maintain order. War was forgotten in an unprecedented agricultural and industrial development.

"Agriculture flourished and was the basis of their food supplies for over a thousand earth years after the wars. It flourished until the so-called chemical age was at its height and then, due to neglect, practically vanished from Mars.

"Industrially, Helio as representative, passed through its growing pains even as we of earth. Individual small establishments catering to local clientele that were gradually merged into larger local units. These local units later to be merged into province and still later into planetary size. Food products that changed with the changing life of the people. Machinery cartels that furnished the requirements of the manufacturing cartels and that called into play and nourished the inventive genius of the people. These cartels and their engineers, working in connection with the governmental engineers, had developed the method of generating the gravity neutralizing field, making air travel cheap and economical. These engineers had again developed the repelling ray, thus making air transportation more economical than transportation by land, so that the use of steam and electric locomotives to draw or push their trains had been abandoned.

"By this time the use of synthetic things had reached enormous proportions. The chemical age was upon Helio and soon, carried away by their success, the chemists were urging the use of synthetic food. For a long time the ministers to the King fought against the change, but there came a time when the King acquiesced, so chemically compounded foods became the major sustenance of the people. The remote agricultural districts held off the longest in adopting this food and continued to grow some grain for their own use. It was well that they did so.

"You can imagine, Jim, that in the course of a few hundred years of non-use that agriculture would become a lost art. It did on Mars and very nearly spelled the extinction of the red races. For several centuries very little change was noticed in the human bodily functions, although a very slight effect gradually grew larger in each succeeding generation. The checking up of the ancient races and their bodily functions by an investigator of the Imperial University showed an alarming decrease in the vitality of the children. This stirred up a planet-wide investigation that fully bore out the original report and thus precipitated the contact between Prince Dravi and myself.

CHAPTER VIII

"DELVING into the history of Helio was very enlightening as well as pleasant and it netted me many firm friends. I have since profited by the advanced knowledge I gleaned from my intensive investigations and studies. This phase of my visit in Helio was secondary to the round of official and unofficial visits and receptions with which the people tried to fill my days. However, I managed to find time for all of them as well as to have many serious discussions with King Dotar, Prince Dravi and Duke Zeol in regard to the furthering of their plans for profitable trade with earth.

"At my request a detailed study had been made of all the products of Helio's factories, the advanced methods of manufacturing as well as the machinery that made those methods possible. From this study a series of catalogs had been compiled that displayed each thing produced as well as the minimum cost at which Helio could produce that product in various quantities. Have you ever looked over that catalog, Jim? The one in 300 volumes that occupies the north wall of my office? If you want to see something beautiful, you had better look into at least one volume, which one does not matter, for all of them have much to offer.

"At my request Norville had collected as complete a file of catalogs as was possible and had sent them over to Helio on a freighter. These showed all classes of food products, furniture, clothing, fabrics, lumber products and in fact everything that Norville or myself could think about. These were gone over in detail with the heads of the various cartels that might be interested, and I explained the uses to which the various things or products were put on earth. I promised to augment the catalog file from time to time or to furnish one of my own put up in the language and nomenclature of Helio.

"After several weeks we finally agreed upon a trading relationship and general understanding as to trade and other contacts. The main portion stipulated a fixed percentage profit for me on all earthly products that I purchased destined for Helio. No such restriction, however, was placed on products of Helio destined for earth. Their catalog price to me was strictly confidential.

"On their part is was agreed that they were to establish a regular line of fast freight ships from Helio to an earth terminal at my air-port. Also they were to build two 1,000-ft. palatial passenger liners to be placed into passenger service between the two planets. At first these liners were to be run on the excursion plan of personally conducted, all-expense tours and then later placed on regular schedule.

"King Dotar and Prince Dravi offered to finance for me the construction of four passenger liners to be placed into passenger service from my air-port to the various countries of earth and I to pay for them out of the profits of the lines, if such profits materialized.

"It was agreed that I was to be given exclusive manufacturing rights to their various discoveries along aerial transportation lines, with the stipulation that I was to protect those rights by taking out patents from the various nations protecting patents upon earth. This agreement was to cover specifically the metal used in constructing their space fliers, the repellant ray, the anti-gravitational and gravitational field generation apparatus as well as many navigating instruments necessary in interstellar transportation.

"As part of the agreement I was to act as advisor and disbursing agent to a certain number of their students and scholars who each year would come to earth to study various activities of our people. Also, to further a better understanding between the people, I was to encourage as much as possible similar study of Helio.

"Lastly I was to organize a body of young scientists who were to join with a similar number from Helio in an expedition to explore the rest of the known planets of our solar system. Any discoveries of commercial importance to be exploited on a 50-50 basis. We were also to send an expedition into outer space to determine and investigate on the belief that beyond the Milky Way were innumerable galaxies of suns and attendant planets, Helio also recognizing my own and my children's right to be the sole representatives on earth of their planet for at least one hundred years if we so desired. It was suggested and assented to that when the passenger ships were delivered to earth that the crews would continue in my service until it was possible to train an adequate personnel to take their places.

"Many other small interpreting details were discussed and settled so that I soon felt that I had better return to earth. The Prince urged that I stay longer, but I felt that I was needed here, so after a final round of visits and entertainment the day approached for my departure.

"The golden ship of Helio's King had been reconditioned by order of King Dotar and made ready for my return. It was manned by a picked crew. We were assembled at the craft at high noon ready for departure when Duke Soran asked me if I had determined to do all the translating that would be necessary to make up the prospective catalog alone. I answered that the point had completely slipped my mind and that I could use a secretary very nicely, one from Helio and one who was a scholar and still young, for he would have to learn my language before he would be of much use. The Duke then bowed low to King Dotar and said that with the King's permission he would like to send his son with me—that the boy had been teasing for the job for days. The King and Prince Dravi laughed and called the boy forward. I was impressed with his frank smile and straightforward look, so I agreed to take him.

"The boy jumped back into the crowd, embraced his mother, then gravely said good-bye to his father and preceded me into the ship. I embraced Prince Dravi, thanked King Dotar and Queen Beta for their kindness and hospitality, shook hands with each of the Ministers and stepped aboard the golden ship.

"The door silently slid into its recess, the departure siren screamed its warning, we lifted out of the cradles and with a final radio farewell we gradually shut off Mars' gravitational effect and soared out of their atmosphere into the void.

"Day and night followed one another in rapid succession as we hurtled through space. Soon Mars and earth looked the same size, but gradually the earth and its moon loomed up larger and larger. One day near the end of the journey we slowed down our speed and brought the ship down to within one hundred miles of the moon's surface to take additional clear photographs of the surface and we also used the spectroscope.

"Speed was again resorted to and soon we were slowing up for the trip through earth's atmosphere. We had made the return trip in slow time of six hundred hours and, believe me, Jim, I was certainly glad to feel the solid concrete of this air-port under my feet.

"Duke Soran's son took kindly to earth and earth's people, and after about nine months he had mastered sufficient of our language so that he could be of real help to me in my contacts with Helio. I began work on the compilation of an "Earth's Products" catalog immediately after I returned and it was a stupendous task, one that would have "thrown me for a loss" if I had not had the help of the keen-minded son of my old friend.

"Norville soon left to engage in the contracting business again, for his nature just could not exist behind a desk. Peters, who by the way stayed with me until his demise, had performed wonders in his purchasing of food products. He was also very successful in getting North Dakota hard wheat farmers under contract to produce for us alone upon a cost of production plus fixed profit basis. He was then placed in charge of all purchasing. I hired a publicity director with vim and imagination, sent him on a round trip to Helio, then we began to exploit the proposed passenger lines and the personally conducted, all-expense tours to Helio.

"In the meantime the supply of grain and grain products continued to flow steadily outward into space. More and more it became increasingly evident that earth would have to continue to furnish the major portion of cereal foods that were consumed on Helio.

"Years of profitable trade followed in which the chemicals, minerals and machinery of Helio's advanced development were exploited to earth's eagerly waiting industries and people. Advanced methods and machinery stepped up the efficiency and progress of many of earth's industries until the earth you see today is at least five hundred years ahead of what it would have been. That is a very conservative estimate. Helio gained in many things but mostly in agriculture and in a market for its minerals. Agriculture on Helio, however, will never be able to furnish their consumption, for due to the depletion of atmospheric moisture the soil just will not produce the yields of other ages.

"July first of 1936 came and with it came the two passenger liners to be placed into interstellar service. One came with just a crew of picked men, but the other had every room filled with scientists, educators and just plain sightseers. I had already engaged one of the best of the world tour conductors to personally conduct this ship around the world, sending Duke Soran's son along as interpreter. Was it a success? Well, you should see the sheaf of communications in my private files regarding that first tour. It was a howling success and produced more advertising for this air-port and its service than thousands of dollars could have purchased.

"The empty ship was quickly filled from a select waiting list and sent out as the first 'Interstellar Rubberneck Tour.' The strange beauties of the Martian landscapes, their architectural and engineering works so appealed to these first travelers that the passenger lists were full for years ahead.

"Late July saw the first of the passenger liners, constructed for my use by King Dotar and Prince Dravi, arrive at the air-port, ready for the earth transportation routes that had been mapped. This and the subsequent ones as they arrived were placed into service immediately. The service was received with open arms by the traveling public and seldom did a liner leave at any port of call with a vacant stateroom.

"Traffic flowed from all over the earth to this airport to take passage for Mars and Helio. Scholars, teachers, scientists and engineers clamored to make the trip. Soon Helio placed two more large ships into the service and you, Jim, daily see to what proportions the interstellar passenger traffic has grown. Here we are with regular passenger lines to Venus and Mars and freight lines to our Moon, Mars and Venus. On or above our earth we have passenger ships reaching every capital of earth countries as well as the larger cities. You know that for the past ten years we have never lost or injured a passenger in the billions of miles our ships have traveled.

"Duke Soran's son took over the task of whipping into shape the interpreters for use both on Helio and on earth and he did a very creditable job. He also was given the task of helping the Martian ship commanders in their tasks of making mechanics and airliner crews from the best of the raw material we could muster. Now all of our earth lines are commanded and manned by my own people as are half of the interstellar passenger ships.

"We have, due to my exclusive use of Helio's air developments, built the extensive manufacturing yards for aircraft that lie there to the east and, I believe, have added some new developments to those of Helio that have aided materially to our new ship's efficiency.

"Those in authority on Helio with whom I am associated are well satisfied with the progress that has been made in commercial development between the two worlds. People in general in Helio are getting quite a kick out of the 'Rubberneck Excursions' we send out to them. The same observation holds good for the people of earth.

"Next week will witness the arrival of the new Ambassador to the United States from Helio. The new man is to take the place of my old friend, Duke Zeol, whom you may have seen around here at times. The Duke came to the United States as Helio's Ambassador in 1940 and has asked to be released on account of advancing age. He also has a desire to spend his later years with his old friends on Helio. While here he has aided materially in the promotion of interstellar goodwill and assures me that he has thoroughly enjoyed his contact with earth's people.

"King Dotar passed to his fathers some years ago and Prince Dravi ascended to the throne, and under his rule Helio and all Mars is prospering greatly. The other night in our weekly radio chat he reminded me that he expected me out in a couple of months to hunt ziths with him in the southern mountains. Well, I'm going, for the hunting is good and I love to be with him and those old counselors who are left that were with him when our first contact was made.

"Wake up there, Jim! Answer that light on your board and report the safe arrival of the Lunar Freighter for which we have been waiting. I see it dropping down for the cradles and I'm on my way to see that new metal it carries.

"Au revoir, old top. I hope you have enjoyed the yarn, for I am mighty glad to get it off my chest."

THE END

Moss Island

By Carl Jacobi

THAT undernourishment stunts the growth, alike of animal and plant, is an undeniable and well-known fact. On the other hand, chemical mixtures that stimulate the growth of plants have been found by enterprising and inventive botanists. And certain injections to a sluggish thyroid gland are supposed to increase the growing powers of even humans. Practically every invention of man thus far is known to have its duplicate (or original) in Nature. This new short story, therefore, is highly plausible and entertaining.

Illustrated by MOREY

FIFTEEN MILES off the New Brunswick coast, to the south of Marchester yet north of Lamont, lies a great timber-covered rock which has become known as Moss Island. With its endless chain of reefs, its frowning sheer walls, and its bastions of dense underbrush and giant trees, the island has remained untrespassed and primeval. Fishermen fear its jagged sides and keep well away. And as far as I have been able to learn, I am the only human being, or at least the only one for years, who has cared to visit its Eden shores.

For the sum of ten dollars, a little fishing smack had brought me out, had carefully threaded its way to a bit of beach on the western side.

"You're a darn fool," the rather deaf owner of the boat had growled when we arrived. "I'm givin' ya fair warnin'. I'll keep my part of the bargain and come back for ya at five o'clock, but only if the weather permits. I'm not so crazy about the looks of that sky over there, and if there's anythin' stronger'n a breeze comes up—well, you can figure on stayin' here 'til it calms down. I ain't a-goin' through that bunch of saw-teeth in a wind for the fun of it. Not with *my* boat. Anyway, what's interestin' here? Nothin' on Moss Island but trees and rocks. Not even any moss no more. Somethin' killed it," and he pointed to a smooth expanse of black rock, in places covered by a mass of last year's vines, dead and brown colored. One slab high above me looked like a woman with long, flowing hair, a great embossed Medusa, it seemed, when the wind ruffled the withered grasses.

"That's Mape vine, not moss," I corrected him. "There's probably lots of moss farther in where there's damp shade." I picked up my hammer, my chart-drawing board and my knapsack and stepped from the boat, adding in explanation: "I'm going to do a little geological survey work, examine the rock formations, you know; and I don't think we'll have a storm. The weather report didn't say so."

He gave a derisive humph, whether at the nature of my work or my remark about meteorology I was left wondering, for without another word he shoved off. For a while I watched the boat bobbing away through the white caps, the little sail growing smaller and smaller and showing clean white in contrast to the green water and the blue sky. Then I turned to my surroundings.

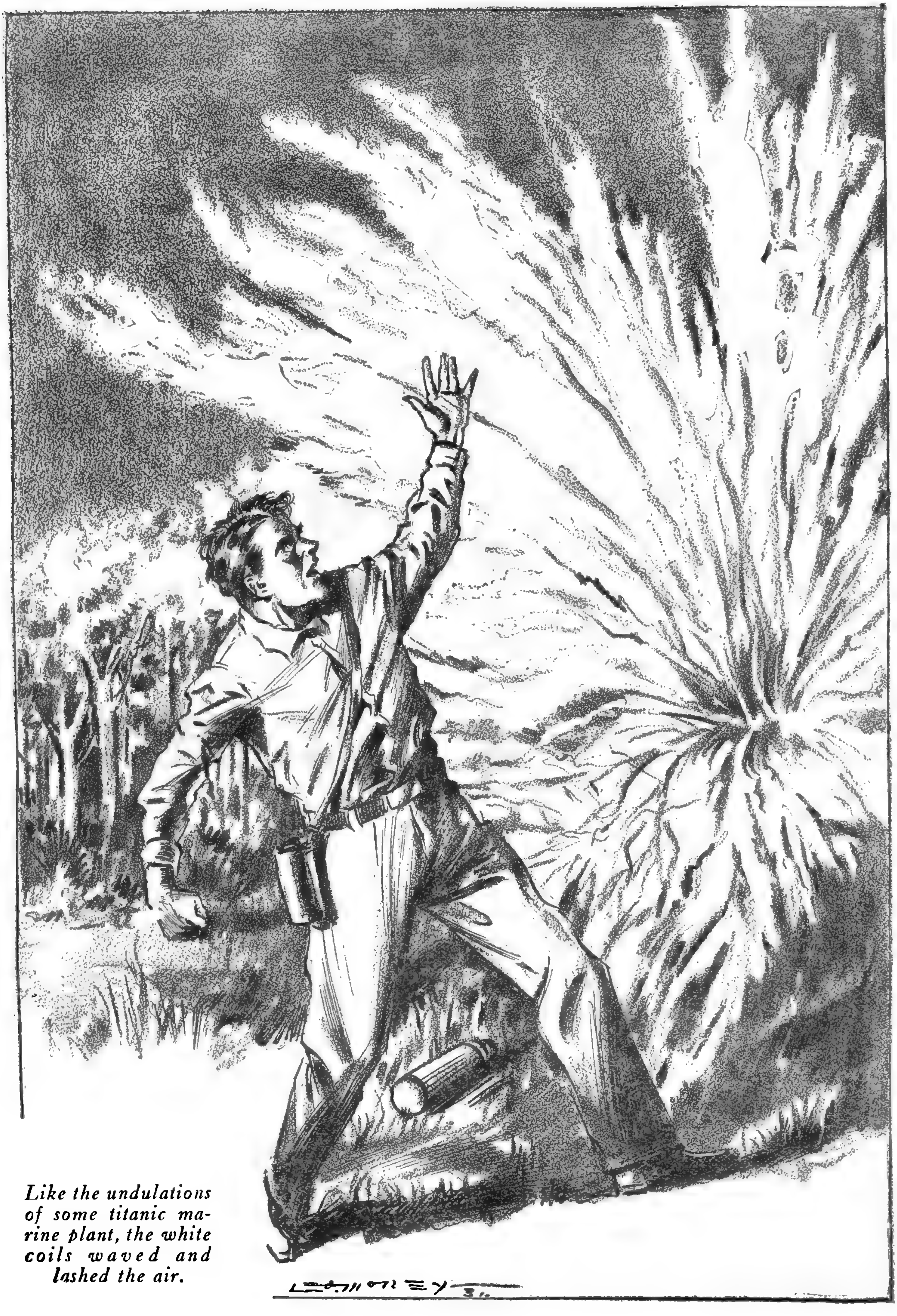
I was still below the island proper, the cliff running some thirty to fifty feet up to the edge of the woods. In some places the wall was almost perpendicular, and I looked about for means of climbing it. Farther on along the beach I came upon a break and a series of jags which, with a little manœuvring, would serve as a staircase. I began my ascent. It was hard, slow work. Gulls whirled about me at my interruption, filling the air with their clamor. Ensnarled Mape vine impeded my progress, and clumps of scarlet bush, which seemed to thrive on the scant nourishment it found in soil-filled crevices, dug its thorns relentlessly into my hands. Upon a little jutting shelf I saw a dead snake, its head hanging into space as though watching something below.

At length I reached the top, which I found to be flat as a plateau, the surface from the edge of the cliff quite void of vegetation for a distance of about five yards, when abruptly began a wall of trees, the outer ones bearing evidence of the ravages of the elements. Peering off to sea again, I tried to catch sight of the boat that had brought me, but though I looked until the air before my eyes appeared porous, I could see no sign of it.

Striving to throw off a growing feeling of depression, I broke out into a loud whistle, following any tune my lips desired. The whistle seemed to travel for miles in the clear air. It rose above the trees and went far over the island. There was no echo. Only the waves swashed over rocks below me, and as I walked along the screaming cries of a solitary gull fell perfectly into the rhythmic cadence of my steps.

I kept close to the edge of the cliff. To have attempted penetrating that jungle of growth would have been foolhardy. So I watched for a place where the trees might thin down, reflecting idly that the glacial drift must be of a considerable depth to support such extensive vegetation. About half a mile onward I found some pieces of shale with a few shell fossils and a small slab of limestone with remarkably clear impressions of crinoids. These ancient forms of marine life I determined to be of the Mississippian geologic period.

But for some reason I lost interest in my work. The very solitude of the island seemed to have crept into me and dulled my senses. Occasionally I was forced to enter the wood to circle a mound of larger rocks that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Like the undulations of some titanic marine plant, the white coils waved and lashed the air.

defied ascent. Occasionally I caught the glint of the sun shining upon the bloated body of a dead fish lying far below on the little stretch of sand. And although I had gone only a short distance, all the while the weight of my knapsack seemed steadily increasing.

BY three o'clock I had almost reached the opposite side of the island. It was there on the eastern exposure that I came upon a sheer wall, a rock formation that would have delighted the most experienced geologist. Here with the Pennsylvania strata folded and resting upon the eroded edges of the Mississippian was a great sedimentary history of geologic time.

For a long while I examined the wall—from its base upward as high as I could reach. At length, taking my hammer, I began working on a rather peculiar outcropping vein or rather a slight discoloration on the rock. Strange enough, as I went deeper the color changed: from a dark brown at the surface to a reddish brown and from a reddish brown to a deep scarlet. If this were oxidation . . . but no. . . . And then suddenly my hammer broke through—into a cavity in the limestone, a large hole which had been hollowed out by the ground water slowly filtering through the rock crevices and in the course of time dissolving the soluble parts. Such cavities are common to limestone, I knew, but sometimes rather interesting phenomena accompanies them. And so with a feeling of expectation I went to work with a will, enlarging the aperture until it was wide enough to thrust in my hand.

I extended my arm into the opening gently, clawed air for a moment, and then reaching downward, felt a cold, sticky liquid touch the fingers. Hastily I drew my hand to sight. It was dripping with a brownish, viscous solution that had a musty odor. I stared in amazement. Pockets of mineral water are not uncommon in this district, but always it is clear and transparent. Never had I come upon any liquid formation in such a mucilaginous state.

The thought of oil flashed across my mind. I cast it aside with a sheepish smile. There is no oil on the New Brunswick coast nor for thousands of miles in any direction. And this brownish mass in no way resembled crude petroleum. It was very odd.

And then quite suddenly I remembered a recent conversation with Professor Monroe at the University of Rentharp, where I am doing graduate work in geology and mineralogy.

"Phillip," he had said when I came upon him in one of the laboratories before a table of vials, tubes, and instruments, "Phillip, I believe I've made a discovery." And while he worked he had told me in his short, jerky, nervous manner about muscivol, the name which he had given to his find. "It is very rare," he had said, "rarer than radium."

I have always been interested in botany and I have a fair knowledge of the subject, but I confess some of his scientific explanation went over my head. This much, however, I roughly gathered:

In northern climates, under favorable conditions, can be found a rare moss which resembles and yet fundamentally differs from the common *Saelania* moss. After living in great luxuriance for a number of seasons, this *Musci* plant will suddenly die. If the diseased plant is examined just before its death, it will be found that almost a reversal of the natural processes of growth is going on.

A month earlier a small blister or pouch develops just above the rootlets. And for some unknown reason most of the food elements which the plant obtains from the soil and from the air, instead of serving to nourish the whole plant, gather and centralize in this pouch in liquid form. The rest of the plant is thus robbed of its food; it can no longer live healthily, and growing in damp places as it does, it is slowly overcome by rot.

The decay affects the contents of the pouch. The liquid goes through a process of fermentation, though that is hardly the correct term. At length, however, the pouch bursts and the liquid soaks into the soil.

If a large number of these diseased moss plants are present, the ground will be almost saturated with the liquid. In time—always under favorable conditions—the liquid will soak down until it reaches and becomes a part of the ground-water—that is: the water in the solid rock below the surface which one taps when digging a well.

Limestone is full of subterranean cavities. The water carrying this plant-liquid in solution may find one of these, enter it, and become stagnant. Gradually the cavity deep down in the rock will be filled with the pouch-liquid of hundreds of these diseased mosses. And what is equally important with it will be certain amounts of mineral matter which is always present in the ground-water.

"Nowhere can it be found in the same intensity," Professor Monroe had said, "and in no two places is it really the same, for the mineral matter in the solution will always vary."

"Well, what good is it?" I had asked, rather bored by his long explanation.

The professor had put down his test tube, leaned across the laboratory table and said slowly: "I have discovered by accident that sometimes this liquid—Muscivol, I have called it—sometimes it contains all the elements of growth."

"What do you mean?" I asked, puzzled.

"I mean that if I apply a small quantity of it that has the right amount of mineral matter in solution to the original moss plant, one in healthy condition, its rate of growth will be speeded up tremendously. I mean that the few drops of Muscivol I have been able to find when placed on the stalk of a moss plant caused it to leap upward to twice its original size in a few seconds."

AND as I stood there on the cliff, staring at my dripping fingers, it all came back to me. With a start I realized that this must be a vug* of Muscivol, that rarest of liquids, the essence of moss growth. In haste I emptied the coffee from my thermos bottle and, using the cover as a cup, carefully reached into the cavity and with the utmost care began the process of capturing as much of the sticky fluid as I could. I smiled to myself as I pictured Professor Monroe's surprise and delight when I brought him this find. The most he had been able to discover was a few drops, while here was almost a quart. True, I did not know as yet if it contained the necessary mineral matter to make it potent. That I must leave to the professor and his test tubes. When I had filled the thermos bottle, I carefully closed it and placed it in my knapsack.

The next hour I spent in making a rough chart of the sedimentary wall before me and writing in my notebook a brief geologic description of the island. All this, of course, was part of my university work. At length, the brief survey completed, it occurred to me that I still had time for further exploration before the boatman would return, and so shouldering my knapsack, I headed into the interior.

In a moment, as though a mighty door were shut, the woods closed dark upon me, and I found myself in a jungle of growth that discouraged further penetration. Gradually, however, as I struggled forward, the underbrush, finding insufficient sunlight to exist, thinned down until there were left only trees and moss.

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*A vug is a term used in mining to indicate a small, unfilled cavity in a vein or in the surrounding rock.

The strange, luxuriant abundance of the latter accounted, I saw, for the island's name. Fern moss, Long moss, Urn and Cord moss, *Catharinæa angustata, Polytrichum strictum,* and tree moss—in every division common to the northeastern United States the *Musci* order here was represented.

On rotting logs, at the foot of trees, in parasitical clumps upon the trunks, and on the ground as a soft carpet of damp green—everywhere was moss. With its perpetual damp and shade and its moist sea air, the island seemed to present strangely perfect conditions for this plant.

THE wood was silent about me now, and only occasionally, when the tessellation of verdure above became less dense, could I see the light of the sky. As I went deeper, the trees seemed to take definite positions in the forest about me, to form long, dark corridors with winding turns. The mosses lost their dark greenish hue and developed into a bluish yellow, a sickly yellow in the morbose gloom. The air was moist and warm. It weighed heavily upon my lungs and seemed to throw a great torpor over my body. I wiped the perspiration from my forehead and went on. The island, it appeared, was infested with blue jays, jays strangely fat and overnourished. Great flocks of them rose up at my approach, their screaming cries filtering slowly through the sodden air like the death wails of a thousand drowning cats.

But as I went farther and farther, even they disappeared, and I was left with only the walls of trees, the floor of moss and the gloom. I saw more varieties now: Shaggy moss, Hooked moss, and Hair-capped moss. Yellowish plants, they were, sickly and flaccid in the half light.

At random I chose one of the corridors through the trees and made my way slowly forward, my steps velveted in the soft grasses. Winding, yet ever going deeper into the interior, the walled lane stretched before me like a living gallery. The intertanglement of foliage far above was heavy and dense, admitting no light but only a strange green glow. An odor of rot rising from the earth crept into my nostrils, and I began to breathe with difficulty.

It was a quarter after four by my watch when I reached a point where the trees opened abruptly onto a little glade. Roughly estimating this to be about the heart, the center of the island, I was about to turn and retrace my steps when a mass of white at the far side of the open space caught my eye. I stepped forward and found myself gazing at a great circle of densely packed *White Moss.* For some moments I stood there, looking down at the cushion-like tufts as a wave of loathing slowly rose within me.

The species I had recognized as what is technically known as *Leucobryum glaucum,* a *Musci* plant common enough in moist woods, but for some reason, whether because of its contrast to the green and yellow moss on all sides or the anemic pallor of its gray whiteness, I viewed it here with a feeling of utter revulsion. There was something repulsive about the very way it sprawled across the glade.

During all this time, with the enthusiasm of exploration, I had almost forgotten my finding of the liquid in the limestone cavity. Now, however, I felt a sudden desire to prove to myself beyond a doubt that the solution really was Muscivol, by observing how this moss plant would react to a few drops. Quickly I unfastened my knapsack, drew forth the thermos bottle, and unscrewed the cap. Then carefully tilting it over the matted circle of white moss, I let a small amount of the brownish liquid fall.

The result was amazing. The plant quivered a half moment, then shot upward with terrific growth rate. Unconsciously I jumped back. My foot caught in a bramble. I lost my balance and fell full length. The thermos bottle bounced from my hand, rolled across the ground straight into the White Moss plant, and there the viscous contents began to pour forth.

With a cry of dismay I realized what had happened. A quart of Muscivol was upon the plant, a quart where a few drops had been multipotent. A great shudder ran through the moss. A sobbing sigh came from its grasses. And then with a roar, the rootlets gouged down into the ground, tore at the soil, and the plant with a mighty hiss raced upward, five feet, ten feet. The tendrils swelled as though filled with pressure, became fat, purulent, octopus folds. Like the undulations of some titanic marine plant the white coils waved and lashed the air. Up they lunged, the growth rate multiplied ten thousand times.

A tentacle in its mad gyrations brushed my face. I screamed in horror, turned to the wood and ran—down the long corridors, the lanes, the galleries, through the trees. Behind me the roar rose into a great thunder; the hissing stabbed the air like escaping steam. On through the dark woods I raced, a wave of wild fear surging over me. Looking over my shoulder, I could see the white moss with coils like cables now, climbing over the trees, advancing with frightful velocity. Muscivol! What fiendish chemical was this that could destroy the very laws of nature? The black boles of the trees like shrouded phantasms leered at me in mocking answer as I lunged by them. A great wail rose up as a thousand terrified blue jays flapped away in a mad hegira for safety. The forest was endless. Miles I seemed to have run, but with a heart pounding triphammer pulsations I tore on even faster toward the cliff.

At length I reached it, emerged into the open air, but found the day not as I had left it. A heavy fog had rolled in from the sea, had thrown a veil over the entire coast.

I did not stop. To the rear the wall of white was lunging over the island now like a tidal wave. Came the repercussions of the crashing of trees, snapping under the great weight of the moss. The growth fulminations pounded against my ear drums until they seemed ready to crack. Along the cliff, through the thickening fog, I ran. And suddenly a fearful thought came to me. Suppose the boatman had not returned? Plangent and insanely insistent, the question beat through my brain. I could see myself being crushed, strangled, smothered in those white folds.

Again I looked back. Again I screamed in stark horror. With frightful rapidity the advancing moss was gaining on me. Like an octopus the tentacles were clawing the sky, engulfing the whole island. And now the ground beneath my feet, torn and ruptured by the distant moss roots, began to shake in cataclysmic convulsions.

But at length I reached the break in the cliff where I had made my ascent from the beach. I ran to the edge and peered over. The boat was there! Through the haze of the fog I could see it drawn up on the sand, the boatman placidly smoking his pipe, waiting. Never was a sight more welcome, and with a prayer of thanks I leaped to the jags in the rock sides and began my descent. Going down was harder than coming up. Twenty times I saved myself from falling only by grasping the Mape vine coils. The thorns of the scarlet bushes stabbed to the bone.

How I ever reached the bottom safely I don't know. I remember running wildly across the beach to the boat, climbing in, and shouting something unintelligible to the astonished boatman. And then we were out on the water, heading into the fog, the cool salt air fanning my face.

I came to my senses finding the old man chafing my wrists.

"What in thunder happened?" he asked. "What's the matter?"

I stood up in the rocking boat. Vaguely, indistinctly through the haze I could see the great bulk of the island a half mile to our lea.

"That moss!" I cried, "that wall of white moss! Don't you see it?"

He stared over the water, squinting his eyes. "Moss?" he repeated slowly. "Did you say moss?" and he turned to me with a queer look.

"I don't see no moss," he said. "All I can see is fog, white fog."

THE END

Once in a Blue Moon

By Harl Vincent

(*Continued from page* 83)

ter's shoulders, throttling him with his hairy paws grimly and efficiently. The German scientist was one more rebel—a game one.

He saw Mort, dragged away from him, fighting like a demon—saw him pick up one of Carter's huskies bodily and fling him into the mob. Slim Downey's body was smouldering over there in the flaming switch of the frequency-converter. But the great machine still sang its song of vast energies unleashed; on a different note now—Slim's sacrifice had changed the characteristic of the emanations.

All was chaos in the blue abyss. The Great Ones were swinging around in a wide arc that was carrying them ever nearer.

Overhead, the Lesser Ones were victorious. One by one the Dark Ones vanished in blue vapor puffs until all were destroyed. In the balconies, the pigmy folk were kneeling; a new chant had arisen, and in its wailing note was supplication, and dread of the wrath of the Great Ones. Their ages-old faith had returned.

Otto Zimmerman had joined Pete now. Together they beat off a half dozen of Carter's maddened brutes. Mort flung himself into the tangle, cursing vividly. Blindly, desperately, the three fought.

And then there was a new lurching of Earth's satellite, a general swaying and crunching and grinding of the space about them. Only half conscious of what transpired, Pete knew there were many of the Lesser Ones about them. They were rushed out of dark passages and through rose-lit vistas of blue columns, hustled from the melée by the spheres.

Now they were again in the pit bottom where Rocket VII and the "Hornet" lay waiting. There was much activity of the Lesser Ones, and a flow of liquid blue metal came in to close off the opening which led to the inner realm. Dozens of the blue-white globes converged on the great rocket ship, invisible energies crackling in their midst, and she melted down swiftly to join the blue torrent which already was congealing to seal off the ancient world within.

Urged on and assisted by the friendly Lesser Ones, they boarded the "Hornet" and soon were rising speedily out of the pit. And all was darkness and mystery beneath them.

But a majestic voice came out of the depths, a voice that was strong in the consciousness though it sounded not in the ears. It told them all was well in the blue realm; told them the conspirators were no more; told them Luna's surface was free to those of Earth who might come in search of its treasures. They, the Great Ones, the Lesser Ones, and the pigmy folk, would remain inside until the end of time. The adventure was ended.

Clark Peters sucked in his breath sharply when the "Hornet" shot up out of the pit and over the crater's rim. The blazing sun greeted them. It was a wonderful thing to see.

"Himmel!" Otto Zimmerman exclaimed, "Earth iss gone; der sun iss here. Id vos Downey's act. Hiss body shorted der energy, made it negatiff. Ven der Great Vuns mofed der shell followed, und der moon turned combletely ofer, nicht wahr? Now ve alvays see der odder side from Earth—alvays."

Mort Saunders wrinkled his brow and tugged at his fiery lip ornament. Figuring it out, Mort was. Pete laughed, then sobered on the instant.

"We'll not speak of the Great Ones?" he breathed, "Or of any of it—about the blue realm, I mean."

The others agreed vociferously. No one would believe them, not in a million years. And besides, there was something—perhaps that majestic voice; perhaps Slim's deed—which bid them keep silence. And so the story has been a secret these many years, coming to light only with the unearthing of Clark Peters' diary.

Peters will be remembered as the hero of the "Hyperionic" disaster a year ago. He it was who saved eighteen passengers of the ill-fated space liner from certain death in the lava pools of Mercury ere he succumbed to his own burns and injuries. Of him no more need be said.

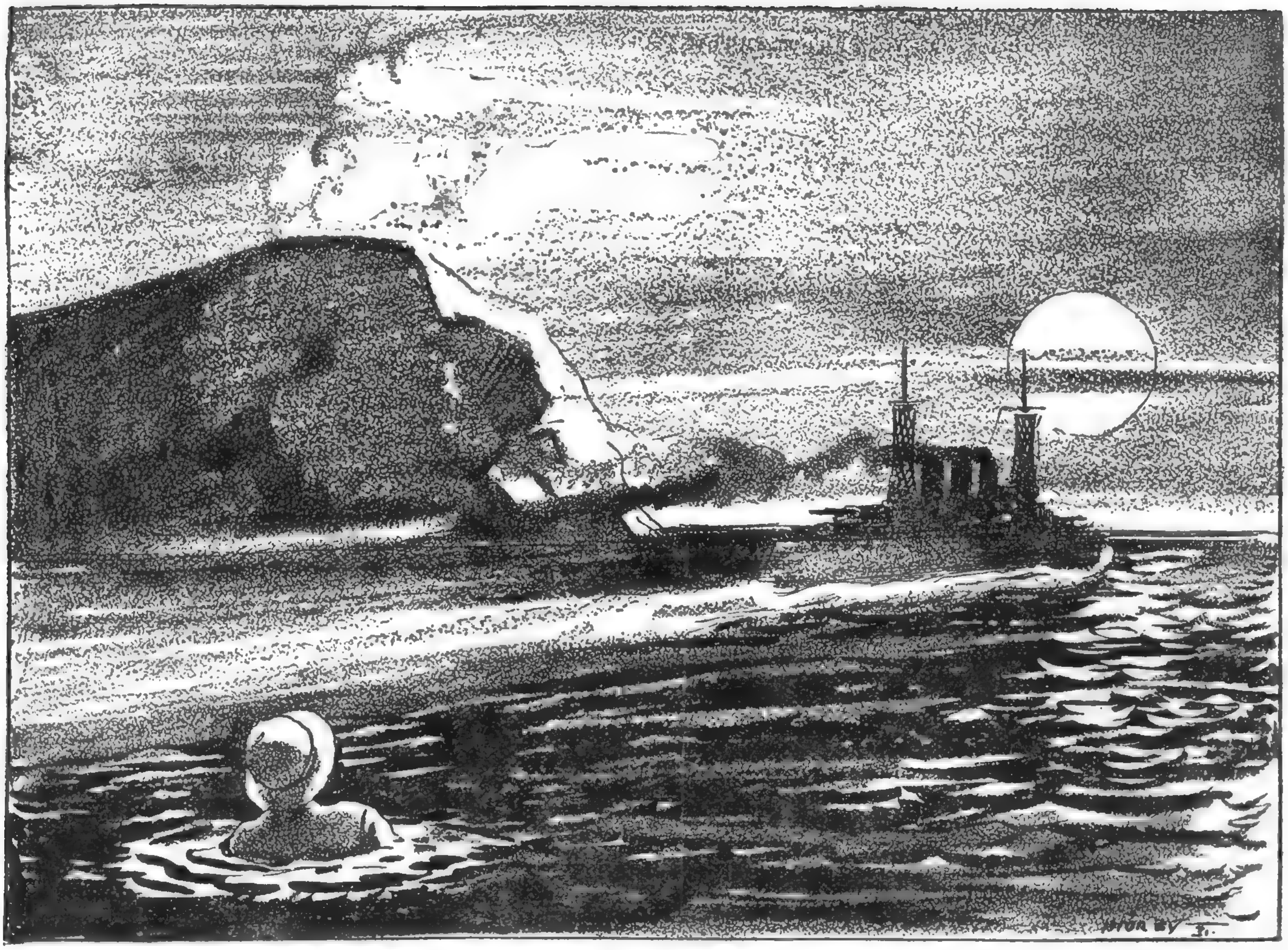
Otto Zimmerman is an old, old man who smiles and nods agreement when asked to confirm the tale of the diary.

But Mort Saunders, older still, and with his once fiery hirsute adornments now white as the driven snow, is more specific. Certain of the personal details about Pete that the diarist omitted, he will be perfectly willing to tell.

"Huh!" he has said, "Pete didn't record the half. In my humble opinion, it was *he* who saved the Great Ones. True? Of course it's true; go ahead and print it if you want to. Nobody will take any stock in it but Captain Wallace James.

"And he won't believe it either."

THE END



With the spiritual poise of a Lady of the Lake walking toward her Jurgen, she walked toward the ship and the sunset. . . .

Naval Control

By John Shamus O'Donnell

I AM in a saddened and unbearable state of melancholia. Four months ago today my Florence Minerva succumbed to the deadly fever of a South American jungle.

What a woman! I will never find another like her; she was the perfect helpmate. When I would be weary while working on my mining invention, she would spur me on with intensive spiritual quotations, and not only to me was she an inspiration.

To the natives she was a blessing. I firmly believe if she had lived another ten years she would have accomplished the full attire of at least half the female native population of Peru.

I remember now, as when we first arrived, looking about with a Napoleonic glint through her glasses at the shameless half nude natives, how she struggled to moralize them in the early stages. She would no sooner get a native woman to drape herself more heavily, than one of the burly bucks would take it away from her, promenading through the village street with her drapings.

WHY, some of our readers have asked, do we take science fiction so seriously? Is there no humor in it? We think there is. But we want to hear from more of our readers about this story, which we are using as an experiment. We think it is very ingenious and cleverly worked out.

Overcoming all these obstacles, she had the village going Baptist with glorious hallelujahs, when she was stricken by fever, and we laid away my spiritual six foot Jeanne d'Arc.

I drifted back to my laboratory home at Beal Gulch outside of Oakland, California, on the Golden Gate, where I gaze at the fog-filtered sunsets and think with pensive sadness of my Florence Minerva.

I've tried the subterfuge of housekeepers and servants but they all seem such strangers in the house that Florence Minerva enveloped with her personality.

Once again I go to my lonely bed torturing myself with a look at one of Florence Minerva's night caps, which still hang under our favorite epigram, "Love, pure and unadulterated."

Today I received a gleam of insane hope through my old colleague, Professor Egan, the Irish scientist.

It seems, after twenty years of constant labor, that he has at last perfected his mechanical human, controlled by his advanced inventions on power transmissions, and on account of the devotion held for my dear wife and me, he has collaborated with a modernistic plastic surgeon, and a marvelous sculptor, producing, he says, an almost human likeness of the departed Florence Minerva. In his letter he expresses the desire to have his invention in my laboratory home, where we both could experiment and, perhaps, improve on her life-like qualities and where he would be unhampered for space or bothered by curiosity seekers.

I immediately wired my acquiescence and waited with feverish impatience.

He answered immediately and said that he would make the daring experiment of bringing her out on the train intact as his traveling companion; and would start as soon as he could pack his laboratory instruments and spare parts for Florence Minerva.

Six days later I received a wire announcing his departure in this manner—"Taxied to the Grand Central Station with Florence Minerva, and left New York quite successfully. So far she is human, all too human, even attracting a bold smile from a sailor loafing in the station."

The next communication I received was this, by Western Union—"March 17, Garrison, N. Y., Safely seated in Pullman, just one minor accident so far; on boarding train, one of the radio transfusion wires in my vest became shorted and Florence Minerva fell through the glass in the Pullman window; in my momentary excitement I seized her by the throat and sat her down; naturally she tried to repeat the gesture but I finally managed to straighten the wires and she dropped back into normalcy. I greatly fear this has caused undesirable comment; I hear loud indignant buzzings made by two rather spinsterish looking old ladies seated in back of us, who seem to think Florence Minerva was either trying to commit suicide or make an escape. I had Florence Minerva turn about and explain in her maidenly way, that she was subject to fainting spells and not to be alarmed. I seem to have the situation well in hand again and will keep in touch with you constantly. Signed, J. Egan."

The next I heard was this: "Aboard the Mohawk Limited, 9 A. M., the last twelve hours have been most hectic. I fear the two old ladies are liable to cause serious complications, they watch us most sharply. Florence Minerva and I retired to our berths at ten P. M. I thought it wiser that we sleep with our clothes on as I am in deadly fear of getting her wires crossed again. This was poor foresight for I overlooked the disreputable condition we were bound to have when we arose in the morning. We arose early hoping to escape the congestion one always finds in pullman wash-rooms, also the two spinsters, but, alas, they were already up and their curiosity hadn't abated over night; they eyed us sharply and noted our rumpled condition suspiciously. I made a lightning-like peep of the ladies' washroom and found it untenanted. I then sent Florence Minerva in and in a few moments brought her out again. I had her essay a good morning to the two old ladies who replied quite stiffly, 'Dear me, I'll be glad when this trip is over!' Florence Minerva has developed an off-key in her cerebral cortex—when one of the old ladies asked her if she happened to be a Methodist, she shouted with the gusto of a longshoreman, that she was a hot shot three o'clock blonde when, according to my A B C D wiring for the larynx, tongue and throat, she should have answered with a cultured, 'No, Baptist.' This, I am afraid has created another unpleasant scene, the conductor even coming up to inquire if anything were wrong. I soothed things as much as possible, by explaining that my wife was subject to a form of nervous insanity if anything of a religious nature was mentioned. Things are resuming normalcy again, thank God! Will wire you again shortly. Signed, J. Egan."

"Mohawk Limited, 18th. A terrible thing has happened. I find Florence Minerva reacts uncontrollably to heat lightning. Everything was quite peaceable, when about noon, there arose a burst of heat lightning. Florence Minerva nearly startled me out of my senses when she burst forth in a ribald sailor's song, which would have been proper in a Singapore drinking dive but it was terrible in a pullman. This was evidently a thought transfusion from the sailor in the Grand Central Station. I shorted her motor-nerve battery, but the damage was already done. The old ladies shrieked, rude men guffawed; we were in wild confusion. Immediately I had Florence Minerva faint, then attempted to explain in an incoherent way that she was having another one of her spells; the conductor growled that if she had any more we would be left, bag and baggage, at the next water tank. It seems every eye is on us, I am praying for night to come, as it's just about time to recharge her batteries."

"Nineteenth, Mohawk Limited, a mystifying thing is happening. I find the sailor who smiled at Florence Minerva in the Grand Central Station is aboard the train. When he walks by our seat, she buzzes and shakes in a disconcerting way; I short circuit her every time. I cannot seem to understand this. Perplexedly yours, J. Egan."

"Nineteenth, one P. M., Mohawk Limited, Amazing! I had a searching conversation with the sailor and I find the cause of Florence Minerva's sympathetic disorders. It seems, during the war he had an accident which resulted in a silver plate being placed in his head near his brain, therefore the fissures and sulci of Florence Minerva's brain, being silver, there seems to be an electrical sympathy between the two convolutions; I sincerely hope nothing comes of this. Incidently he's going to San Francisco also. J. Egan."

"Twentieth, 10 A. M., Mohawk Limited, Florence Minerva behaving in an excellent way, sailor confining himself in smoking room. I will arrive Oakland Mole tomorrow at eleven A. M. Approximately. J. Egan."

AH! The momentous day is here! Can't you picture my excitement? Today I will meet the reincarnation of my dear departed wife. I wonder, can it be possible she will appear as life-like and real as the doctor has stated; it must be so for no one has guessed the secret on the train.

I dressed today as if I were starting on the second honeymoon, arrived at the Oakland Mole in the same frame of mind as if I were waiting for Florence Minerva to step out of the vault. I wondered how accurately they had copied her features and form. Well, we shall see soon, now, as I hear the train clanging in. There he is, and oh, can it be possible! I feel dizzy—It must be some Hindoo magic, for I see my dear wife in person towering above the crowd and swinging towards me with a timid smile of welcome. I must be going crazy. But no, there is dear old friend, Dr. Egan, laboring towards me with his ponderous bags.

I am trembling so and overcome with an unexplainable shyness, I hardly know how to greet Florence Minerva and the doctor. But finally we are through this ordeal and seated in my car, where I have a chance to look over Florence Minerva and Dr. Egan, who seems to have, I might say, a more sophisticated and worldly appearance but, still apparently, the same dynamic energy. We are now nearing Beal Gulch where I wait with pride the joy of showing Florence Minerva and the doctor the magnificent laboratories I have installed for us three, overlooking the Golden Gate.

Florence Minerva and the doctor seem delighted in their new home. There seems to be just one rift in the scientific calm. I fear Dr. Egan is slightly inclined toward sentimentalism. I notice him, in unguarded moments, gazing with tender devotion towards Florence Minerva. This has created a difficult problem for me, for even though Dr. Egan has created Florence Minerva, I feel that she is mine by every spiritual right, I am afraid it is rather straining our friendship. This morning we were even a bit rude over her. The doctor, in the final work of Florence Minerva's brain control, made a grave error. Instead of the simple sweetness of Florence Minerva Number One, she seems to have a suppressed eroticism, which I firmly believe will not coordinate with the mechanical organic system. I stated my belief to the doctor, also adding I thought it sacrilegious to the memory of Florence Minerva Number One; he had the audacity to reply, that perhaps Florence Minerva Number One had been that way, I having the usual intelligence of genus husband.

But we must forget our household squabbles, and now combat mutually a new scientific hazard that has appeared on the horizon. It seems this silver-pated sailor has arrived on the scene again, being stationed at Vallejo, not far from our home, the doctor having seen him while on a trip to town with Florence Minerva. The meeting was unavoidable and Florence Minerva was, as usual, uncontrollable, making herself a perfect mechanical idiot by greeting him as if she were Minnie the mermaid greeting the long-lost boatswain of a whaler. This was extremely humiliating, as you may imagine, to a dignified old gentleman such as our Dr. Egan. We pondered over this new difficulty and the only solution we could see, was keeping Florence Minerva away from the Naval Station and confining her on the sailor's liberty days. We also had a solution of the difficulty in the fact that the sailor's ship was being sent to sea shortly.

Life hummed along in a happy orgy of detecting and eradicating flaws in Florence Minerva and adding more complexity to her brain mechanism. We, of course, have Florence Minerva's orthodox habits dialed quite expertly, but we find in our eagerness to improve, we must have merged some wires, which have produced unchartable complexes; we are watching her closely, and expect, by working her in the usual lanes such as her household duties and church, these wires will work back in place again.

Today was quite a domestic little scene about the laboratory. We were going over her wiring, checking batteries, polishing nails, taking the shine off the nose, washing the hair and deciding which dresses she should wear for the week, quite a problem, I assure you, for two middle-aged gentlemen. Here again the doctor and I were at sword's points, he being inclined towards an English walking suit while I approved of a dignified Mother Hubbard, but we compromised on a gay middy-blouse and sun-bonnet, very charming, I pledge my word.

Today being Sunday, we went to church where we made another momentous but disconcerting discovery. There is a distinct reverberation in Florence Minerva's system to organ music. We were sitting quietly listening to the sweet strains of "Over the River," when Florence Minerva emitted a protracted dog-like howl which stopped the organ but started everything else. The simple country folk, thinking she was beset by devils, broke into loud praying, led by the minister. In this passion of theological fervor we made our escape with Florence Minerva between us.

As much as I enjoy the walks to town with Florence Minerva, I am afraid I shall have to discontinue them; they are too risky. Today, on arriving in town, it being a sunny day, I left her sitting on the bench in front of the store while I made the purchases. On returning, I discovered I had made a very stupid blunder. I had left her sitting on this bench which, being iron, had drained a large part of her magnetism. We started for home immediately but she staggered most erratically, giving the appearance of being in a most inebriated condition. We were followed at our heels by small boys and the village loafers who used this scene to indulge in vulgar witticisms such as, "Don't walk home, lady; the old stiff got you drunk, make him drag you home!" Florence Minerva, at last becoming so weak and the jeers of the crowd becoming so obnoxious, I threw her six feet of pulchritude over my shoulder and broke into a mad gallop. Outdistancing my pursuers, I arrived home red-faced and my heart palpitating most dangerously.

Life is but a bridge; pass over but build not a house thereon. I have been sacrificed on the altar of Love in a most hideous way; the fires of my love for Florence Minerva Number One had only been allowed to cool slightly when Florence Minerva Number Two arrived to give me all my old love again, plus the scientific love. Now I am robbed of everything!

We had sent Florence Minerva for her usual morning walk on our private beach, thinking she was quite safe. What fools we were! We had overlooked the navy!

The cursed silver-pated sailor had been called to sea and, as his ship headed out the Golden Gate, that fatal magnetism caught our Florence Minerva. Standing at the other end of the beach, I saw, too late, what had happened. I pressed the controls in vain! With the spiritual poise of a Lady of the Lake walking toward her Jurgen, she walked toward the ship and the sunset, till, through my tears, I saw her sun-bonnet disappear beneath the waves!

THE END

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of AMAZING STORIES QUARTERLY, published Quarterly at Dunellen, New Jersey, for October 1, 1931.

State of New York }
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Lee Ellmaker, who, having been duly sworn according to law, deposes and says that he is the President of Teck Publishing Corp., publishers of the AMAZING STORIES QUARTERLY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Teck Publishing Corporation, 350 Hudson Street, N. Y. C.; Editor, T. O'Conor Sloane, 350 Hudson Street, N. Y. C.; Managing Editor, Miriam Bourne, 350 Hudson Street, N. Y. C.; Business Managers, None.

2. That the owner is: Teck Publishing Corporation, 350 Hudson Street, N. Y. C.; Macfadden Publications, Inc., 1926 Broadway, N. Y. C.; Bernarr Macfadden, 1926 Broadway, N. Y. C.; Orr J. Elder, 1926 Broadway, N. Y. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is: .... (This information is required from daily publications only.)

LEE ELLMAKER,
President.

Sworn to and subscribed before me this 24th day of September, 1931.

(SEAL) WESLEY F. PAPE,
Notary Public.

(My Commission expires March 30, 1932.)

Your Viewpoint

A Violent Criticism of a Well-Liked Subject Is Not Given in a Way to Suit Our Correspondent

Editor, Amazing Stories Quarterly:

I have followed the Quarterly, along with Amazing Stories monthly, since their inception a number of years ago and I have patiently perused many indescribably terrible stories and even more mediocre ones just for the privilege of reading the worthwhile stories that appear—on the average of one every three or four issues. And until the Fall Edition, 1931, of the Quarterly I have made no active protest, realizing that due to lack of suitable material, you must of necessity publish material from the pens of many half-baked hack writers whose knowledge of fundamental literary concepts and general science extends no further than the first-grade primer. But I can remain silent no longer.

The immediate subject of my wrath is the story, "The War of the Universe," by Clinton Constantinescu. It is an insult to the intelligence of probable readers. May I preface the remainder of my remarks by saying that interplanetary stories are my favorites, lest I be accused of disliking that entire class of fiction?

Let us take up a few specific criticisms. First of all, the story starts out so inanely and illogically as to discourage the most avid reader. Mr. Constantinescu starts out, "It was the year 1992 when the premonition that an incalculable disaster——, so our system was beginning to feel uneasy."

He says premonition, and then mentions a fact, ". . . forced collision of meteorites and suns . . ." to account for a "premonition." Shortly after he states, " 'As I looked in, I saw where a very small spiral nebula was slowly uncoiling——'

" 'Well, what do you think of it?' muttered Luke——.

" 'Hmp!' I laughed, 'Looks like trouble, but you can't tell yet. We'll have to wait and see.'

"With that I went out and attended to some other work, but the thought kept brewing in me. 'A Universal War! A Universal War.' "

Mr. Constantinescu's hero's thought-processes seem to be somewhat obscure and more than slightly muddled. Also, why should the learned Dr. Ferrum laugh about the trouble he suspects, he seems to take it seriously enough later on——?

And again, a few paragraphs further, " . . . This time the rays were originating from a peculiarly blazing comet, which *chanced* to dart into the region of our solar system——.

" 'This is beginning to look serious' said Luke to me one day. 'Looks as if it meant war.' "

Now why should the worthy Luke be led to believe it looked like war, when the comet *"chanced* into the solar system"——?

And so the nonsense, contradiction, and supposed air of deep mystery goes on in a fashion that would not fool a fifth grader.

My second specific criticism is the elementary grammar-school style of Mr. Constantinescu, which appears to me as a childish attempt to imitate Schlossel, but which is spoiled by explanatory digressions (seemingly for first graders of no imagination) and inability to tell his story convincingly. The interplanetary stories of Smith, Campbell, Schlossel and Cummings contain occasional mistakes in scientific reasoning, logic or grammatical construction which pass unnoticed except on second reading, because these men are primarily story tellers and logicians, and their stories are developed rapidly and logically.

My third and final criticism relates to the most deplorable feature of the story—the glaring scientific errors and poor use of scientific ideas and facts. I will mention a few picked at random:

The author forcibly *collides* meteorites and suns. This is silly because of the relative sizes of the two bodies. It is like saying that a fly *collided* with an elephant.

The author quaintly has a spiral nebula uncoil, coil up again and then move across the field of vision. Obviously, Mr. Constantinescu does not know what a spiral nebula is, nor does he have the slightest conception of their distance from the earth.

He observes the planetary system around the binary star and sees five planets moving in "retrograde direction." May I explain to Mr. Constantinescu that retrograde motion is an *apparent* backward motion of one planet seen by an observer on another planet of the same system, due to the fact that the planets are revolving around their primary in different periods of time.

Despite the author's lengthly description of many minor mechanisms, he neglects to explain how terrestrials can walk about on Jupiter without suffering from the tremendous gravitational pull of that planet. Similarly, he does not explain how his spacevoyagers can withstand the fabulous acceleration of his space ships.

His stellar nomenclature is a mess. He speaks of Eta Cassiopeiae* and then later of Rigel Orionis, in which he confuses the star's proper name (Rigel; an Arabic name) with the Bayer system designation, Beta Orionis. And in addition, he calls Rigel a white star. Perhaps Mr. Constantinescu is color blind, but the star is a blue giant of spectral class B8—bluer even than Sirius or Vega.

And so on, seemingly ad infinitum.

My I suggest in closing that Mr. Constantinescu study a little high school chemistry and physics, and in addition *read* some *very* elementary work on astronomy such as Simon Newcomb's old book, "Astronomy for Everybody."

Finally, may I make a plea to the editors of the Quarterly to insist that writers use the correct latin for the inhabitants of Venus and Jupiter—Venerians and Jovians, respectively.

Sincerely,
Don Mack,
110 E. Johnson St.
Madison, Wis.

*Which, by the way, is perfectly correct. But then why should he misname Rigel unless he knows nothing about astronomy as I strongly suspect.

(We do not like to publish letters of so personal a cast, and we will leave it to the author to answer your complaints. You speak of Venerians and Jovians as correct Latin—neither word is Latin—they are based on the latin genetives of Venus and Jupiter.—Editor.)

Some Commendations of the Amazing Stories Quarterly

Editor, Amazing Stories Quarterly:

I do not wish to discuss any particular story in any particular issue of Amazing Stories Quarterly, rather do I wish to compliment your editorial policy in general, for the high standard of all articles published in your magazine.

Your editorial staff has imitators but no competitors, for no other staff approaches yours in choosing the most fascinating, logical and up-to-date material.

One is always assured of reading the best, the very best, when reading Amazing Stories Quarterly. The drama, the love, the fiction, the scientific achievements that are unfolded in the pages of this wonderful magazine are not only absorbing, instructive, but they are theoretically and sometimes practically possible.

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Amazing Stories Quarterly is playing a most important part in the education of the general public, especially along the lines of advanced science, and its fiction ranks foremost in that of present-day authors. May you continue the splendid work you are now doing.

Very cordially yours,
M. M. Turlington, Jr.
521 N. First St., Seminole, Okla.

(We ought to blush to publish your letter. It is very delightful to feel that we are pleasing our readers. In some ways the Amazing Stories Quarterly seems to fill up a gap. It contains a great deal more reading matter than the monthly and may be said to be more strictly devoted to stories.—Editor.)

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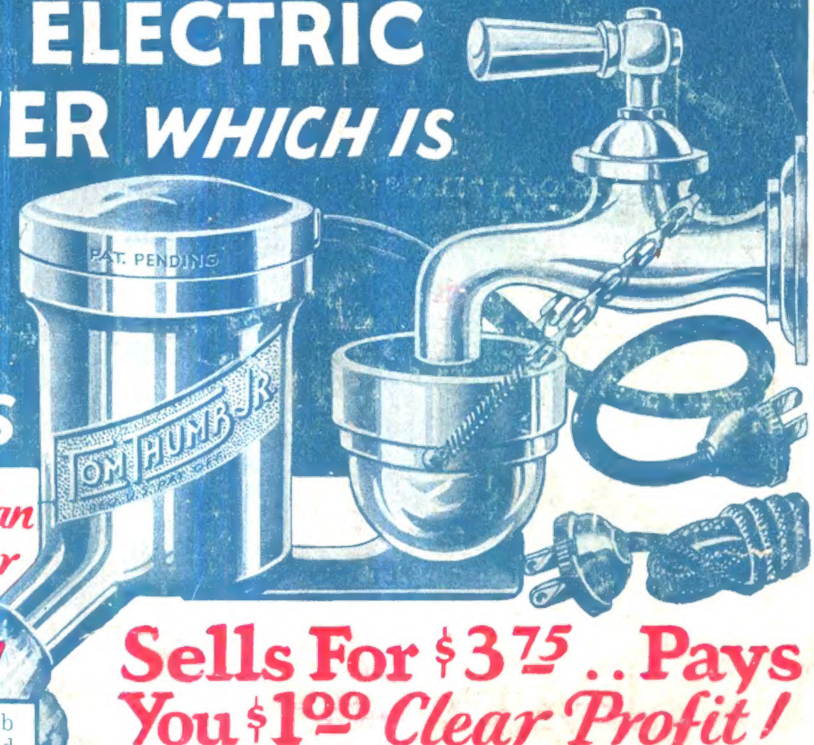

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